Ontario Energy Board

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Ontario

H.R. 13

REPORT TO THE

MINISTER OF ENERGY

ONTARIO HYDRO

BULK POWER RATES FOR 1985

H.R. 13

August 31, 1984

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Energy
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14 Carlton Street
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August 31, 1984

The Honourable Philip Andrewes
Minister of Energy
12th Floor
56 Wellesley Street West
Toronto, Ontario
M7A 2B7

Dear Mr. Minister:

In accordance with a letter of reference dated April 16, 1984, the Ontario Energy Board conducted hearings to investigate, examine, and report on the proposal of Ontario Hydro, dated April 9, 1984, to change its bulk power rates effective January 1, 1985.

The report of the Board is hereby respectfully submitted.

ONTARIO ENERGY BOARD

I. C. MacNabb
Vice-Chairman and
Presiding Member

J. C. Butler
Member

R. R. Perdue, Q.C.
Member

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PREFACE

This preface will outline the Board's terms of reference, the nature of and participants in the hearing, and the role of the Board.

The Reference from the Minister of Energy

Ontario Hydro's proposal for bulk power rates effective January 1, 1985, is set forth in a letter to the Minister of Energy (the "Minister") dated April 9, 1984, which appears in Appendix A.

The proposal deals only with wholesale electricity rates for municipal utilities and for direct industrial customers with an average annual power demand of 5,000 kilowatts ("kW") or more. Together, these customers account for about 80 percent of the energy sold by Ontario Hydro ("Hydro"). Secondary sales (exports) amount to about 8 or 9 percent, and the remainder is sold to smaller retail customers on Hydro's rural distribution system.

Hydro proposed that the average rate increase for "all customers," which includes rural retail customers, be 9.1 percent. Hydro stated that this would result in an average increase of about 9.0 percent to the 320 municipal utilities and about 9.2 percent to the approximately 100 large direct industrial customers. The increases would vary among customers depending on their requirements and delivery patterns.

Hydro's proposal stated that these increases were based on a revenue requirement for 1985 of $4,186 million, including net income of $360 million. During the hearing, parts of the revenue requirement were updated with the result that net income would be reduced to $308 million if the 9.1 percent increase were implemented.

The proposal was referred to the Ontario Energy Board (the "Board") by letter from the Minister dated April 16, 1984, pursuant to section 37 of the Ontario Energy Board Act (the "Act"). The letter of reference sets out the nature and scope of the investigation, examination, and report requested by the Minister. It states his view that the 1985 proposed bulk power cost increase should be kept "as low as feasible, consistent with the maintenance of its [Hydro's] financial soundness, its ability to attract capital at favourable rates, and the reliability and quality of service to its customers." It also stipulates that, "as in previous years, the Board shall review and report on the impact of the system expansion program on the proposed rates; however the system expansion program is excluded from the review." The letter directs the Board to investigate the proposed changes to Hydro's "policies and practices respecting power costing and rate making" without re-examining the principles which were established following the Board's 1979 report on the costing and pricing of electricity.

The Hearing

Following receipt of the letter of reference, the Board issued a Procedural Order dated April 17, 1984, giving directions for service and publication of the Notice of Hearing, for a pre-hearing conference, for the manner of intervening, and for the pre-filing of evidence by Hydro and intervenors, and it set May 29, 1984, for commencement of the hearing. The Board received numerous letters expressing concern about the rate proposals, and notices of intention to intervene were received from the following:

Association of Major Power Consumers in Ontario ("AMPCO")
Belleville Public Utilities Commission
Church in Society Committee of the United Church of Canada, London Conference
The Consumers' Gas Company Ltd.
Dow Chemical
Mr. Arnold M. Earl
Energy Probe
Inco Limited
Kingston Public Utilities Commission
Markham Hydro Electric Commission
Mississauga Hydro
North York Hydro
Northern and Central Gas Corporation Limited
Ontario Association of Physical Plant Administrators
Ontario Hydro Professional and Administrative Employees (Society of)
Ontario Liberal Party
Ontario Municipal Electric Association ("OMEA")
Ontario Natural Gas Association ("ONGA")
Ontario New Democratic Party Caucus
Ottawa Hydro
Dr. John B. Robinson
Scarborough Public Utilities Commission
Toronto Hydro
TransCanada Pipelines
Union Carbide Canada Limited
Union Gas Limited
Mr. J. Paul Wearing

Appearing at the hearing were:

Pierre Genest, Q.C., and Ian A. Blue	on behalf of Hydro
Brian J. Armstrong, Q.C.	Counsel for Board Staff
Jeffrey Davies	on behalf of AMPCO
David I. Poch	on behalf of Energy Probe
Alan M. Schwartz	on behalf of OMEA
Robert J. Howe	on behalf of ONGA
William Gardner	on behalf of The Consumers' Gas Company Ltd.
Keith J. Bryan	on behalf of Northern & Central Gas Corporation Limited
Henry B. Arndt	on behalf of the Ontario Association of Physical Plant Administrators
Aubrey Butler	on behalf of Union Gas Limited
Arnold M. Earl	on behalf of himself
Allan Slater Rev. Susan Eagle	on behalf of the Church in Society Committee of the United Church of Canada, London Conference
Julian Reed, M.P.P.	on behalf of the Ontario Liberal Party
Odoardo DiSanto, M.P.P.	on behalf of the Ontario New Democratic Party Caucus
James Murray	on behalf of TransCanada PipeLines Limited

The views of all intervenors and letter-writers expressing concern were taken into account by the Board in reaching its conclusions. However, only the views expressed through active participation and formal submissions are

mentioned in this report. A full transcript of the proceedings is available at the Board offices.

The Board wishes to express its appreciation to all parties and witnesses, and their advisors, for the contribution they made to the hearing. The annual rate review process is complex and lengthy, and it can be completed successfully only with dedication and co-operation from the participants.

The Role of the Board

The Board is directed by the letter of reference in carrying out its responsibilities under the Act and in responding to the Minister. In addition, changes in method or policy from previous years must be appropriate under current and expected conditions and consistent with directives contained in the letter of reference; forecasts and assumptions upon which the rate proposals are based must be carefully and reasonably made; where applicable, the broad principles of public utility rate-making are to be adopted; and the principles of costing and pricing electricity adopted by Hydro following the Board's report of December 20, 1979 (H.R. 5) are to be followed.

The Board's role in the annual rate review process is to provide a public forum for a detailed examination of Hydro's rate proposals for the following year. The hearing gives groups and individuals the opportunity to question

expert witnesses on the many complex and technical issues and to give the Board their views on Hydro's proposals. The Board's objective is to develop a full and complete record for its consideration in writing its report.

The Board views its role as an important part of the rate-setting process. This report attempts to explain and examine the issues, and the Board's opinions and recommendations are given to the Minister in the hope that they will be helpful to the government, the Legislature, and the public in understanding the rate proposals. In addition, the Board expects that the report will assist Hydro management. In particular the Board anticipates that it will assist Hydro's Board of Directors, which has the final responsibility of setting the 1985 rates later this year. The Board recognizes that in the current volatile economic environment the passage of even a few months may result in significant changes in the key parameters and forecasts supporting the 1985 proposals. It has attempted to highlight these sensitive areas, as well as those risk factors that have a significant potential impact on the revenue requirement, for the guidance of Hydro's Board of Directors.

The Board's findings are summarized in the "Opinions of the Board", which starts on page 103.

ECONOMIC OUTLOOK

Economic forecasting plays an essential role in Hydro's planning for the coming years. This chapter will outline Hydro's forecast for the economy in 1985, look at the major criticisms of that forecast advanced at the hearing, and present the Board's assessment of Hydro's forecast. It will also consider several related issues raised in the hearing.

The 1985 Economic Environment

The economic assumptions about 1984 and 1985 that underlie Hydro's April proposal are based on the "Winter Review, February 1984" of its short-term "Economic Outlook, Annual Review, October, 1983". The annual review is prepared by Hydro's Economics and Forecasts Division with the assistance of external and internal advisory committees and the Ministries of Energy and of Treasury and Economics. It is updated as required.

At the opening of the hearing in May, Mr. Rothman and Mr. Spiro (Hydro) introduced changes to some of the key economic indicators on the basis of Hydro's "Spring Review, May 1984" of the "Economic Outlook". The spring review predicted higher interest rates and a weaker Canadian dollar in relation to the U.S. dollar in both 1984 and 1985; these factors combined to increase the originally projected revenue requirement for 1985 by $45 million. The review

also projected a slightly lower Canadian inflation rate of 7.0 percent in 1985. Late in the hearing, Hydro's economic witnesses testified that updated information as of July 1984 projected a further increase in interest rates and a further drop in the Canadian dollar in both 1984 and 1985. These factors led to a further increase in the projected revenue requirement for 1985 of $42 million.

Evidence on the economic forecast for 1985 was provided also by Dr. de Bever of Chase Econometrics Ltd. on behalf of Board staff. A comparison between Dr. de Bever's forecast of the key economic indicators and those of Hydro is shown in Table 1.

Table 1

Key Economic Indicators for 1985
(Percentage)

Forecast indicators	Hydro			Chase Econometrics Ltd.
	Feb 84	May 84	July 84	
Consumer price index - Canada	7.5	7.0	7.0	6.0
Consumer price index - U.S.A.	6.5	6.5	6.5	5.5
Real GNP* Canada	3.5	3.5	3.5	3.1
Real GNP* U.S.A.	4.0	3.0	3.0	2.3
Real GPP** Ontario	4.0	3.5	3.5	3.0
Interest rates - average for Hydro borrowing	12.8	13.6	14.0	13.5 (long-term bonds)
Canadian $ in U.S. funds	0.810	0.795	0.780	0.775

* Gross national product
** Gross provincial product

Table 1 indicates that there are few significant differences between the views of Dr. de Bever and those of Hydro. There was agreement among the witnesses that the decrease in the value of the Canadian dollar had been caused by continuing high U.S. interest rates. The attempts by the Bank of Canada and the Canadian federal government to protect the dollar had resulted in higher Canadian interest rates. These policies and events had produced both a historically low Canadian dollar and increased interest rates. Both Dr. de Bever and Mr. Spiro speculated that there would continue to be uncertainty about foreign exchange, particularly in relation to the U.S. dollar, until U.S. interest rates decrease and stability returns to international monetary markets.

Many of the participants considered that Hydro was too optimistic in predicting an average 78-cent (U.S.) Canadian dollar through 1985. Further deterioration would have an adverse impact on the cost of Hydro's U.S. coal purchases and on interest paid on U.S. borrowings.

The Board is satisfied that Hydro's forecast of a 78-cent U.S. foreign exchange rate is reasonable.

The most apparent and significant difference of opinion between Dr. de Bever and Hydro concerned the projected Canadian rate of inflation for 1985. Dr. de Bever's rate of 6.0 percent represented his view that inflation would increase only moderately in 1985, as upward pressures

would be offset by continuing low capital investment, efforts by companies to minimize costs, and a small growth in productivity.

Mr. Spiro, in contrast, considered Hydro's inflation forecast consistent with the projections of reputable forecasters and noted that "virtually every economic indicator . . . suggests that [inflation] is going to be higher in 1985 than in the previous years by a substantial margin".

Board Counsel and the OMEA advocated that Hydro's inflation forecast should be reduced to 6.0 percent and 6.5 percent respectively. Mr. Armstrong noted that Hydro's figure was inconsistent with its updated forecast of exchange rates and argued that it had been developed using a simplistic equation. Mr. Schwartz suggested that money supply had not been taken into account. Counsel for AMPCO, Mr. Davies, said that productivity improvements had not been properly assessed.

Mr. Davies submitted that Hydro's downward revision (from 4.0 to 3.5 percent) in the 1985 GPP growth rate, following the spring review, was not justified by the evidence. However, according to Mr. Rothman, the overall effect would be small because the 1984 rate of growth had been revised upwards. When Mr. Spiro introduced his final update at the conclusion of the hearing, he said that Hydro had not done a revised forecast of GPP in detail and that a consideration of mainly offsetting factors had led him to maintain the rate of growth in 1985 at 3.5 percent.

The evidence has satisfied the Board that Hydro's method of producing its inflation forecast is comprehensive and has reasonably assessed the important factors, including money supply and possible improvements in productivity. In the Board's opinion there are more factors that will tend to increase inflation in 1985 than to reduce it. The former include upward pressures on wages and profits, the danger of imported inflation resulting from a low Canadian dollar, and the continuation of high real interest rates. Offsetting these trends is the possibility of a recession that could dampen inflation. However, most of the participants considered that Hydro's forecast for the rate of growth in the GNP and the GPP was on the low side. Finally, the Board notes that Hydro's forecast of inflation was in the middle of the range of predictions of recognized forecasters.

The Board has concluded that, in the present economic environment, Hydro's overall forecasts are reasonable. A number of important factors involved in the GPP, such as the level of capital investment, the strength of the automobile industry, and the demand for manufactured products, are dependent on continuing economic recovery. There appears to be a greater risk that Hydro's forecast may be optimistic than pessimistic. As Dr. de Bever said, "one has to pick a most likely estimate and has to make some assessment as to the risks around that estimate and be done with it."

In the Board's opinion, Hydro's estimates of the economic environment in 1985 are reasonably based and are accepted for the purposes of this report.

General Observations

Mr. Genest, in response to suggestions by the OMEA, said that, in the future, Hydro would include an examination of the long-term outlook for the Canadian dollar in its annual economic outlook and would attempt further refinements to its prediction ranges.

Mr. Poch of Energy Probe suggested that Hydro had an incentive to forecast high inflation rates to justify rate increases and its capital expansion program. In the Board's opinion, there is no evidence to support a contention that Hydro's forecasts are biased in this manner.

Mr. Schwartz (OMEA) made suggestions that he said would improve the sensitivity information provided as rules-of-thumb for assessing the effect of changes in the planning assumptions on net income and the revenue requirement, and on the capital program. The OMEA was concerned about the accuracy of the sensitivity factors and also requested that, in future, such figures be developed for both the current year and the proposal year. Mr. Schwartz also reiterated a recommendation he made last year that Hydro conduct a retrospective study of the success of past sensitivity factors in predicting the effect of changed assumptions. He was supported in these recommendations by Mr. Armstrong.

In the Board's opinion, the sensitivity information currently provided fulfills the useful function of showing the interrelationship of the many assumptions inherent in the financial forecast and the rate proposal. The Board considers that the level of precision is adequate and is concerned that attempts at further delineating these relationships could result in an illusion of accuracy.

In its argument Hydro summarized and explained the changes in the 1985 revenue requirement that would result from the adoption of the recommendations of Board Counsel and the participants. This summary was very useful, and the Board recommends that a similar analysis be prepared in future hearings.

PRIMARY AND SECONDARY SALES

In this chapter the Board will explain Hydro's forecasts of future sales, consider its primary load forecast, analyse its new Marketing Program, and finally examine the forecasts for secondary sales (exports).

Background

In its submission Hydro pointed out that forecasts of future sales, although based on a considerable amount of data, ultimately depend on the judgement of the forecaster. Therefore, in order to consider Hydro's sales forecast, an assessment must be made of the data used in its preparation and of subsequent changes in important variables. The judgement of the forecaster should also be evaluated by comparing past forecasts with historical results.

Data collected in April 1983 were used in preparation of the 1984 Planning Load Forecast of primary and secondary sales for 1984 and 1985. This forecast was approved by Hydro's Board of Directors in December 1983 and was used as the basis for the submission in this hearing.

In its original submission, Hydro forecast primary and secondary sales as follows: (Table 2)

Table 2

Primary and Secondary Sales

	1984	1985
Primary sales*		
Peak Power (average monthly - MW)**	16,086	16,600
% change		3.2
Peak (December - MW)	18,254	18,878
% change		3.4
Energy (GWh)	108,993	112,567
% change		3.3
Load Factor (%)	77.1	77.4
Secondary sales and revenues		
Energy (GWh)***	10,505	9,705
% change		(8)
Revenues for secondary power and energy ($ millions)	391	374

* Total system primary demand
** Megawatts
*** Gigawatt-hours

Source: Exhibit 3.1

During the hearing the Board was advised by Mr. Rothman (Hydro) that he had carefully reviewed the changes in circumstances since the preparation of the submission and that, on the basis of the higher-than-forecast sales in 1984 and the improved economic outlook, his judgement was that primary sales in both 1984 and 1985 would be about 1.5 percent higher than the forecasts in Hydro's submission. No change was made to the forecast of secondary sales.

Primary Load Forecast

In previous reports the Board has expressed concern that Hydro could not demonstrate a link between its forecast of economic activity and its load forecast and that the adjustment made for unallocated load was disproportionately large. The Board commends Hydro management for the reorganization that has resulted in the incorporation of the Load Forecast Group in the Economics Division, since this has now established a clear connection between the economic and load forecasts. The Board also commends Hydro for improvements in the quality of the customer survey and its efforts to ensure that the survey provides the most current data for the load forecast. This has resulted in a significant reduction in the unallocated load adjustment.

Board Counsel endorsed these improvements but considered that the timing could be improved further because Mr. Rothman had found it necessary to advise the Board during the hearing that his forecast of sales for 1984 and 1985 was too low. He suggested that the budget load forecast be updated in February or March of each year by incorporating the considerations that had caused Mr. Rothman to amend his forecast. This would ensure that the Board was dealing with the latest information in the rate submission.

Counsel for Energy Probe urged caution in adopting the proposed 1.5 percent sales increase, claiming that overforecasting would simply push more costs to future

customers since corresponding revenue shortfalls would force Hydro to raise an equal amount through additional borrowings. In contrast, counsel for the OMEA claimed that a 1.5 percent increase was too low and that the load forecast for 1984 and 1985 should be revised upwards by 2 percent.

The Board is satisfied that the evidence presented as to current sales and the forecasts of economic activity support Mr. Rothman's projection that sales will increase by 1.5 percent in 1984 and 1985. The Board therefore recommends that 1985 rates should be set accordingly.

The Board will not recommend any specific timing changes or any updating of data used in the preparation of the load forecast because it recognizes that the reorganization is relatively recent and that further improvements in the process can be expected as Mr. Rothman continues integrating the economic and load forecasting functions.

Marketing Program

The implementation of Hydro's corporate policy for the 1980s has resulted in considerable emphasis being placed on increasing sales. Since March 1983 extensive changes have been made both in the organization of the Marketing Branch and in the development of a marketing strategy. Marketing for the Corporation has been consolidated within the Marketing Branch by the addition of personnel, the establishment of new operating groups within the branch, and

the undertaking of studies to assess the potential market for electricity in a number of specific areas.

Mr. MacCarthy confirmed that Hydro's corporate strategy now included increasing electricity's share of Ontario's energy requirements to 20 percent by 1990 from its present level of approximately 16 percent. As part of this overall program the objectives of the Marketing Branch are now based on the principle of "wise but wider use of electricity", with load management techniques being applied to avoid advancing the in-service date of any generating facility. This has included encouraging field representatives to increase customer contacts and to respond to market opportunities and customer needs without waiting for the introduction of specific programs. Previously, field representatives did not initiate customer contact but only responded to requests for assistance from customers and prospective customers.

The evidence was that the efforts of the Marketing Branch would increase sales in 1985 by about 1.0 percent or 1.0 terawatt hours ("TWh"). This increase in sales would be the cumulative effect of an increase of 0.5 TWh in 1984 and of about 0.5 TWh in 1985. Mr. MacCarthy advised that sales are currently ahead of the 1984 target and that, as of early July 1984, increased sales of 0.36 TWh have been directly attributed to the efforts of the Marketing Branch.

The participants expressed varying levels of concern about the activities of the Marketing Branch. Board Counsel submitted that some $5 million of the Operation, Maintenance and Administration ("OM&A") budget would not be spent because the dual energy program was not successful. He was concerned that no specific marketing plan had been established for 1985 and claimed that more could and should have been done, "given the central importance of the marketing branch and the implementation of the corporate strategy and the substantial commitment of budgetary resources that Hydro has been prepared to make in support of its efforts." Mr. Poch, counsel for Energy Probe, expressed concern that the largest part of the $30.2 million Marketing Branch budget is aimed at increasing sales without a business plan to support these initiatives.

Mr. Armstrong and Mr. Poch were concerned that the marketing activity in the residential and commercial sectors is contributing to Hydro's system peak which will accelerate the need for expensive system expansion. Mr. Armstrong submitted that Hydro should address this problem and direct its efforts to industrial sales.

Mr. Poch outlined other risks that he considered the marketing program imposed, including impact on local distribution systems, increased coal usage, and acid gas emission. He claimed that Hydro has given up its responsibility to support conservation and that, at the very

least, the emphasis on marketing should be decreased because load is expected to increase as a result of Mr. Rothman's adjustment of 1.5 percent.

Counsel for ONGA argued that the funds spent and budgeted for the Marketing Branch in 1984 and 1985 are not cost effective. Mr. Howe noted that the dual energy program had reached only 10 percent of its target; that Blended Power and Intermittent Power rates had produced no sales; and that the Monthly Power rate, which replaced Blended Power, had resulted in only one sale since its introduction. He also claimed that Hydro's expenditure of large sums of money on marketing might have an adverse impact on the operations of municipal utilities and would contribute to the problem of acid rain.

Mr. Howe also noted that Hydro's transmission facilities in five areas in the province have "stress levels" that are already excessive. He submitted that Hydro should cease marketing activities that encourage the growth of primary demand until it is able to justify the potential effect on its operations and on those of the municipal utilities.

Mr. Schwartz, counsel for the OMEA, supported Hydro's marketing program and considered that the budget of approximately $30 million was realistic in view of an increasingly competitive market, excess capacity on the Hydro system, and "the impact on the public of all of the competing messages that Ontario Hydro must respond to".

The evidence presented in this hearing is that Hydro's system will have surplus capacity both in peak, (as indicated in Table 3) and in energy, because the load factor is forecast to be 77.4 percent in 1985, with no evidence of improvement in the near future.

Table 3

	Excess Capacity (MW)
1983	2,715
1984	4,037
1985	5,641
1986	5,675
1987	5,792

The Board agrees with Hydro counsel, Mr. Genest, that, given Hydro's current and forecast surplus capacity, there is little concern that Hydro's marketing efforts will cause the system peak demand to exceed capacity in the near future. The Board recognizes that any reduction of the surplus base-load capacity lowers the unit cost of production and will therefore lower rates. The Board considers that any initiative that lowers rates, without deferring costs to future customers, should be encouraged.

Concerning the cost effectiveness of the Marketing Branch, the Board notes Mr. Genest's comments that only $6 million of its total 1985 budget will be spent in promoting additional sales. Because most sales contracts extend over more than one year, the benefits from the expenditure in 1985 should be realized over many years in the future. This must be recognized when evaluating the cost effectiveness of marketing programs.

The Board agrees that marketing programs should be carefully researched before implementation, to avoid problems or failures such as the dual energy program. It notes Mr. MacCarthy's comments that a marketing plan for a two-year period is being prepared and the Board therefore recommends that Hydro file this plan in next year's hearing and ensure that it is comprehensive and includes specific programs and targets.

The Board notes that the dual energy program is undergoing modification to improve its attractiveness and therefore will not recommend the adjustment to OM&A costs as suggested by Mr. Armstrong. The Board recommends that this program be reviewed at the next hearing so that the modifications and their acceptance can be assessed.

The Board recommends acceptance of the Marketing Branch budget, but is concerned that a budget of this nature can be set and changes in corporate structure implemented without specific programs and targets being established. It would appear more appropriate to initiate studies, develop programs and targets, and then adjust the organization to implement the programs. The Board believes that cost inefficiencies will result from Hydro's actions but cannot quantify these with the information available.

The Board will not recommend any restriction on sales that contribute to peak demand because of the excess capacity. The Board accepts Hydro's commitment to alter its

marketing approach from a general sales program to a concentration on load management, high load factor, and off-peak sales, as capacity surpluses are reduced. The Board is also confident that Hydro will not enter into sales contracts that would result in exceeding stress limitations in its transmission system and will not recommend a restriction on the marketing program.

Secondary Sales (Exports)

To reflect its revisions to the economic outlook made during the hearing, Hydro revised its forecast of revenues from secondary sales to the United States in 1984 from $391 million to $400 million and for 1985 from $374 million to $382 million.

Board Counsel criticized Hydro's revision to revenues as it reflected only the forecast decline in the Canadian dollar and not the increase in sales volume that he considered would result from the comparatively lower rate.

Mr. Armstrong also concluded that Hydro's forecasts of 1985 secondary sales, particularly to Michigan, were unduly pessimistic. He noted that secondary sales for the first quarter of 1984 were significantly ahead of forecasts, that revenues were about 12 percent higher than budgeted, and that the trend in higher sales had continued in April and May. He pointed out that first-quarter sales in any year equal roughly one-third of the sales for that

year. Mr. Armstrong also noted the potential for firm sales and referred to Hydro's negotiations with Cleveland Public Power. Looking at current and potential sales and the decline in the Canadian dollar, Mr. Armstrong considered that Hydro's forecast for 1985 should be increased by 1,300 GWh and accordingly the revenue requirement would decrease by $18 million.

Mr. Armstrong also expressed concern that the responsibility for the marketing of export power appeared to be somewhat fragmented between the Power System Program Division and the new Electricity Export Department developed within the Marketing Branch. He submitted that the Board should recommend that Hydro actively pursue secondary sales in the United States through a more co-ordinated and concerted effort and with greater emphasis on longer-term firm contracts.

Counsel for Energy Probe believed that Hydro's secondary sales would be lower in 1985 because the pressure tube problem at Pickering would result in a higher cost for export power which will be less attractive to U.S. customers.

Counsel for the OMEA shared Board Counsel's concern that Hydro's forecast for secondary sales in 1985 was unduly pessimistic. He argued that the forecast should be increased by 1,350 GWh and thereby the revenue requirement would be reduced by $19 million.

AMPCO argued that secondary sales were understated and cited the higher-than-forecast sales between January and April 1984. Mr. Davies argued that exports would increasingly be nuclear-generated and, therefore, competitive with U.S. coal and Hydro Quebec. He claimed that Hydro should be able to maintain a secondary market of about 12,000 GWh, an increase of 2,295 GWh above Hydro's forecast, and that the 1985 revenue requirement would therefore be reduced by $21 million.

The Board has noted Mr. Genest's argument that in 1985 Hydro Quebec will have improved interconnections with New York state and thus be able to challenge 90 percent of Hydro's sales to that market. However, as Mr. Schwartz pointed out, this was known to Hydro when it prepared its evidence in last year's hearing, which included a higher forecast for 1985 than its current one.

The Board also notes that the in-service dates forecast for many of the U.S. generating stations within Hydro's export market, and some of the interconnecting transmission lines, have been delayed. The Board believes, therefore, that Hydro's ability to increase secondary sales will improve because competition will be less severe than anticipated and the Canadian dollar will be lower than forecast.

In view of the foregoing and the tendency of Hydro in prior years to be pessimistic in forecasting secondary

sales, the Board recommends that the revenue requirement be reduced by $18 million to reflect higher sales and improved margins.

The Board is of the opinion that a concerted effort should be made by Hydro to reduce surplus capacity and increase revenues by developing sales in the United States. The Board is concerned, therefore, that there should be no fragmentation of effort and recommends that Hydro examine its export sales organization and make adjustments if required to ensure that a co-ordinated approach is made to that market. The Board believes that greater emphasis should be placed on longer-term firm sales.

COST OF POWER

In this chapter the Board will examine fuel and fuel-related costs; the expenses surrounding pressure tubes in the nuclear installations; operation, maintenance, and administration costs; fixed charges; financial policy respecting various costs, and net income for 1985.

Fuel and Fuel-Related Costs

The majority of Hydro's fuel and fuel-related costs are incurred in the purchasing of fuel for the generation of electricity. This section discusses nuclear production, the purchase of uranium, and other costs associated with the supply of electricity: water rentals, coal supplies, and several lesser items in a general category.

Hydro's Submission

Table 4 was included in Hydro's pre-filed material and provides details of fuel and fuel-related costs for the years 1983, 1984, and 1985.

Table 4

Fuel and Fuel-Related Costs
($ millions)

	1983	1984	1985
Fuel used for electric generation:			
Fossil	877	914	730
Nuclear	154	145	231
Water rentals	28	30	32
Internal transfers*	(53)	(5)	7
	1006	1083	1001
Power purchased	126	158	153
Nuclear agreement payback	37	(64)	(90)
	1170	1177	1063

* including commissioning energy and Bruce steam transfer.

Columns may not add due to rounding.
Source: Exhibit 4.1

The forecast for 1985 was updated during the hearing, principally as a result of the increase in water rentals imposed by the Ontario government, Atomic Energy of Canada Limited's ("AECL") closing of the Douglas Point nuclear generating station, and changes in fuel costs and production mix. The net effect of these changes was an increase in fuel and fuel-related costs of $29 million.

Nuclear Production

Hydro's forecast of nuclear energy production is based on estimates of the period that each nuclear unit will be out of service, using the Derating Adjusted Forced Outage Rate ("DAFOR"), the Maintenance Outage Factor ("MOF"), and the Planned Outage Factor ("POF"). Each unit's capability and capacity factors are determined from these estimates, and the system production forecast is calculated therefrom.

Board Counsel and counsel for the OMEA both considered Hydro's record of forecasting capability and capacity factors to be unduly pessimistic. Based on a review of the operating performance for Pickering units 3 and 4 over a seven-year period, they argued that Hydro's forecast of 84 percent capacity factor for 1985 was too low. Over the seven years the net capacity factor has been 88.45 percent, and, even accepting an increased possibility of pressure tube leaks, they submitted that the forecast of 84 percent should be adjusted upwards to 86 percent. Board

Counsel and counsel for AMPCO considered that Hydro's contingency allowance of 2 percentage points added to DAFOR for Pickering 3 and 4 was not supported by the evidence.

Board Counsel, counsel for the OMEA and AMPCO argued that the revenue requirement should be reduced by $4 million to reflect the 2 percentage point adjustment.

Counsel for the OMEA considered that neither the capability nor capacity factors forecast for the Bruce A units fully reflected the 3.7 percent increase that would result from tying into the emergency coolant injection system. He did not agree with Hydro's contention that the increased plant maintenance in 1985 over 1984 would totally offset this increase and argued that the capacity factor should be increased to 83 percent from the updated figure of 81 percent. Since Hydro had originally forecast a capacity factor of 78 percent, he submitted that the increase of 5 percentage points justified a reduced revenue requirement of $23 million.

Mr. Schwartz also submitted that the 1985 capacity factor for Pickering 8 should have been based on the experience of Pickering 4 and 5 rather than that of Bruce A. He argued that this would increase the capacity factor from 84 percent to 90 percent and further reduce revenue requirements by $2.5 million.

Board Counsel and counsel for the OMEA noted that Hydro had reduced the capacity and capability factors for

Bruce 5 and 6 to 70 percent in recognition of the planned warranty outages in 1985 and that Hydro planned to forego warranty outages on Bruce 7 and 8 in anticipation that any generic faults would be found in Bruce 5 and 6. Both counsel submitted that the benefits did not justify these costly outages and that no outage should be provided for Bruce 5 in 1985. Board Counsel said that as a result, the net reduction to revenue requirement would be $15 million (the OMEA said $9 million, and Hydro said $8 million).

Counsel for the OMEA accepted that Hydro might consider the warranty outage at Bruce 5 to be essential, and he recommended that every effort be made to delay the outage until after July 1986, when Pickering 1 should be back in service.

Counsel for Hydro pointed out that its best engineering judgement went into the estimate of DAFOR for Pickering 3 and 4, using current knowledge of delayed hydride cracking. Since Pickering 3 and 4 were shut down for extended periods between 1974 and 1976 because of this problem, he argued that it was incorrect to rely on only a seven-year history and that the Board should recommend acceptance of Hydro's forecast. Regarding the warranty outages at Bruce, Mr. Genest noted that Hydro's engineers were well aware of the spectrum of options for inspection of these units, and it was their judgement that both 5 and 6 should be inspected.

Mr. Genest also said that the history of under-forecasting should be ignored, claiming that this year's predictions incorporate adjustments to compensate for these discrepancies. Further adjustments he said, could result in an overly optimistic forecast.

The Board is aware of the extent to which judgement is applied in developing the estimate of MOFs, POFs, and DAFORs and is not prepared to dispute Hydro's estimates for specific units. The Board believes, however, that the history of under-forecasting, combined with the potential for increased production identified by the participants, leads to the conclusion that some reduction in the revenue requirement is justified. The Board will make no adjustment for any specific nuclear unit but recommends that the revenue requirement be reduced by $7 million to recognize the potential for increased nuclear production.

Uranium Contracts

Hydro indicated that it has long-term contracts for more uranium than it requires and that, in 1984, it would be paying more than three times the spot market price. Board Counsel pointed out that in 1992 the Denison Mines uranium contract can be cancelled by Hydro on two years' notice, if the contract price for uranium has been greater than the spot market price for five consecutive years. He considered that price relationship likely and, since on cancellation

Hydro would forgo approximately $160 million of the amount advanced to Denison for mine development, he argued that provision should be made to amortize this loss through rates commencing in 1985. Counsel for Energy Probe and the OMEA agreed with this submission.

The Board will not recommend any increase to the 1985 revenue requirement in anticipation of a cancellation of the Denison contract since it agrees with Hydro that the issue is still too speculative, however, the Board will review this from time to time in the future.

Mr. Reed submitted that the Board should recommend that Hydro correct the over-supply situation and that the contracts with Denison Mines and Rio Algom Mines be examined by the Board or by a committee of the Legislature. This Board will not endorse Mr. Reed's suggestion since the supply of uranium is governed by lawful contracts over which this Board has no authority.

Water Rentals

The increase in water rentals announced in the Treasurer of Ontario's budget of May 15, 1984 effectively added $59 million to Hydro's 1985 operating costs, and, since the announcement came after Hydro had filed its 1985 rate submission, it resulted in Hydro's projected net income being reduced by that amount.

Board Counsel and counsel for the OMEA characterized water rentals as a tax. Mr. Schwartz argued that, in unilaterally increasing the rate, the government had "breached" its water rental contract with Hydro and that Hydro should attempt to enforce the contract provisions. Counsel for AMPCO argued that the existence of a valid water rental agreement should carry more weight with this Board than the "unilateral statement of desire from one of the parties." Mr. Davies suggested that the Minister ask the government to reconsider the higher rate because of the impact on rates. Mr. Reed submitted that the Board should recommend that the water rental increase be cancelled.

The Board considers that, as the government of Ontario established the water rental rate as part of its budget, this matter is beyond our review and the Board therefore recommends that the increased charge be included in the 1985 revenue requirement.

Coal Supplies

Hydro has a number of contracts for the supply of U.S. coal, but as a result of the decrease in generation from fossil fuel, coal supplies are forecast to exceed demand for several years.

Board Counsel suggested that excessive coal inventories impose an unnecessary burden on ratepayers and, supported by counsel for the OMEA, recommended that the

Board require Hydro to produce a detailed study of its policies in this regard and its forecasts of coal inventories and optimum levels.

Counsel for Energy Probe considered that Hydro should have a stock of low-sulphur coal on hand to insure against the impact of a serious nuclear outage. Mr. Poch submitted that the use of high-sulphur U.S. coal in such circumstances would significantly increase acid gas emissions. Mr. Reed submitted that savings from the decision to purchase high-sulphur U.S. coal instead of western Canadian coal would be more than offset by the damage caused by acid rain and that the Board should recommend reversal of that decision.

Counsel for AMPCO recommended that an intensive inquiry into coal costs be undertaken at next year's hearing, because Hydro is currently purchasing minimum requirements under the contracts and because the continuing decline in the use of coal could result in significant increases in costs through penalty payments.

In the Board's opinion, there are a number of concerns relating to coal supply, sulphur content, contingency provisions, and inventory levels that have not been addressed satisfactorily in this hearing and that may have a significant impact on cost. The Board therefore recommends that Hydro file a study in next year's hearing addressing these concerns.

Mr. Earl argued that the emphasis on nuclear power at the expense of the fossil stations was a strategic error because nuclear power is not as reliable. He suggested that technology has advanced and that the fossil stations could be upgraded to produce reliable energy at reasonable cost and without undue environmental damage. He referred to coal-water slurries, ultra violet scanners, limestone scrubbers, and various coal-burning methods in support of this position.

Hydro stated that it is monitoring technological developments and the economics of fossil-fired generation and the Board is unwilling to make any recommendation on the expanded use of fossil stations without quantitative information.

General Observations

Counsel for the OMEA noted that Hydro had given as one of its reasons for keeping the Nuclear Power Demonstration Unit ("NPD") in service was that it complemented the role of the Nuclear Training Centre ("NTC"). Since the NTC is to be closed, Mr. Schwartz argued that a study should be undertaken to quantify the value of continuing the operation of NPD. The Board recognizes that it is difficult for this Board or for Hydro's Board of Directors to assess the continued operation of NPD without some quantification of benefits. Since Hydro annually reviews the operation of NPD the Board will not recommend a specific study but, in view of

the decision to close NTC, recommends that the next annual review should attempt to quantify the benefits of continued operation of NPD.

Board Counsel noted that Hydro is conducting a study to assess alternatives for the possible future use of Douglas Point, slated to be closed by its owner, AECL. Both he and counsel for the OMEA wanted Hydro to confirm at a future hearing that costs associated with the closing of Douglas Point will not be included in rates. The Board expects that Hydro's Douglas Point study will be filed in next year's hearing and that any costs proposed to be included in rates will be identified and explained.

Counsel for the OMEA submitted that the Board should recommend that the $0.5 million budget for the Bruce Energy Centre be excluded until the Ontario government agrees to release funds for building the steam pipeline to serve the project. The Board does not consider that sufficient evidence was presented to support such a recommendation.

Counsel for the OMEA also requested that the Board recommend a study be undertaken on the correlation between the length of commissioning periods and the first year's performance of new nuclear units. The Board is satisfied that the purpose of commissioning is to ensure safe, reliable operation of each unit as soon as feasible and does not consider that such a study would provide useful information.

Mr. Schwartz also considered that Hydro would probably purchase approximately 20 percent more power from Manitoba or Quebec in 1985 than it had forecast. He noted that Hydro has underestimated its power purchases in every year since 1979, and, as it is not constrained by coal purchases in 1985, he saw no reason why the level of purchases would not equal that of 1984. The Board is satisfied that power purchases in 1985 will equal those of 1984 and not decrease as forecast by Hydro. The Board therefore recommends that the revenue requirement be reduced by $6 million to reflect this change.

Mr. Armstrong noted the Board's concerns, expressed in last year's report, with the sales of Cobalt 60, but concluded that the confidential nature of the contracts with AECL are such that it was not reasonable to expect the Board to make a recommendation on this matter to the Minister. The Board will make no specific recommendation in this regard but continues to hold the view expressed in H.R. 12 that "a normal private sector rate of return should result from the sales to AECL now and in the future".

Counsel for AMPCO noted that actual fuel and fuel-related costs have consistently been significantly below forecast for the years 1980-4. He submitted that, as a result, a $25 million reduction should be made to Hydro's forecast of fuel and fuel-related costs for 1985 in addition to any specific adjustments recommended by the Board. The

Board is satisfied with the process used by Hydro in forecasting the levels of fuel and fuel-related costs and has concluded that the evidence does not support such an arbitrary adjustment.

Pressure Tubes

Hydro witnesses described the August 1983 events at Pickering Nuclear Generating Station, where a fast fracture of a zircaloy-2 pressure tube in Unit 2 resulted in a shutdown. Shortly thereafter, Unit 1, the only other unit in the Hydro system equipped with zircaloy-2 tubes, was also shut down. Following investigation of the cause of the fast fracture and given the probability of further problems, Hydro's Board of Directors decided that Pickering 1 and 2 should not be restarted but should be retubed using zirconium niobium alloy tubes, the material used for pressure tubes in all other nuclear units at Pickering and Bruce.

This decision will result in additional costs being incurred during the period 1984-7 for the removal of existing tubes, the purchase and installation of new zirconium niobium alloy tubes, and the more costly replacement energy required as a result of Pickering 1 and 2 being out of service.

The investigation of the fast fracture determined that the spacers (garter springs) used to separate the pressure tube from the calandria tube had moved out of

position, possibly as a result of vibration during construction. Subsequent testing indicated that spacers were out of position on all other nuclear units. Spacers in Bruce 5, 6, and 7 and Pickering 7 and 8 will be relocated during construction, with capital expenditures of $36 million in 1984 and 1985 recovered through depreciation charges over the life of each unit. Tools are currently being developed for the relocation of spacers in Bruce 1, 2, 3, and 4 and Pickering 3, 4, 5, and 6, at an estimated cost of $22.5 million.

The decision to retube Pickering 1 and 2 was not directly challenged by the participants, but alternatives were suggested to the accounting treatment proposed by Hydro and concerns expressed with the timing.

Counsel for Energy Probe questioned Hydro's decision not to wait until remote tooling is available, which would reduce worker exposure to radiation. He considered that the Atomic Energy Control Board ("AECB") could intervene and delay the retubing, which might increase the cost.

The Board considers Mr. Poch's concern for worker safety to be important. It notes that radiation exposure is a concern in many maintenance procedures in nuclear stations and that careful monitoring is essential to ensure worker safety. The Board recognizes that the AECB has jurisdiction and the duty to act in this area and anticipates that it

will assist Hydro in establishing the appropriate procedures for the retubing program.

Counsel for AMPCO pointed out that approval of the retubing program by Hydro's Board of Directors is interim only, subject to a release estimate for the program that was expected in mid-1984, and he noted the uncertainty of Hydro's current estimate. He suggested that actual costs could be less than the estimate because a 40 percent contingency was allowed and the cost per tube in the estimate is considerably higher than the cost of previous tube replacements. However, he noted that Mr. Morison of Hydro agreed that a 25 percent overrun in the estimate would be reasonable, and this could raise retubing costs to about $700 million.

The Board considers that the present estimate is preliminary and that it would not be appropriate to recommend any specific adjustment since the release estimate will become available in September 1984. The Hydro Board of Directors will have before it the release estimate, together with more current information as to any AECB concerns, when it considers a final decision on the retubing program. At that time, a more precise impact of the program on revenues can also be established, a requirement for the setting of 1985 rates. There is a risk that Hydro will not achieve its financial objectives in 1985 if the costs associated with the pressure tube program greatly exceed Hydro's current estimate.

AMPCO recommended that the Board direct Hydro to consider writing off some or all of the pressure tube removal cost against the reserve for stabilization of rates and contingencies, which at the end of 1983 was about $1,226 million.

The Power Corporation Act, section 16 (2), states:

> "any or all of the monies in the Stabilization of Rates and Contingencies Reserve Account may be used in the discretion of the corporation for . . . any expenditures or cost caused by or arising from injury to, or destruction, obsolescence or loss of use of any works or other property of the corporation; and to meet other contingencies arising in the operations of the corporation . . ."

On page 76 of this report the Board recommends that in next year's hearing Hydro review the circumstances under which this reserve should be used and believes that Hydro management should address the appropriateness of using the reserve for all or part of the costs associated with the pressure tube removal.

Mr. Armstrong was critical of the evaluation presented by Hydro that indicated that cost savings of $3 billion could be achieved by the rehabilitation of Pickering 1 and 2. He submitted that the evaluation was simplistic, was subject to wide variation, and should not be considered a realistic forecast of costs. Mr. Genest agreed that only a more sophisticated analysis would show more precisely the

benefit of retubing the units, but he referred to Mr. Bartholomew's (Hydro) evidence that a net benefit results over a very wide range of variation in assumptions.

Mr. Armstrong considered that the capital expenditure of more than $500 million and replacement energy costs of over $160 million for the rehabilitation of Pickering 1 and 2 created three major issues:

- treatment of pressure tube removal costs,
- treatment of costs and revenues associated with replacement energy, and
- treatment of the cost of replacing pressure tubes.

Hydro proposed to amortize the removal costs over the three-year period 1985-7, when the tube replacement program will be completed. Net book value of the existing pressure tubes would be depreciated over the period ending in mid-1986 for the first unit returning to service and to mid-1987 for the second unit. Mr. Armstrong argued that the pressure tubes have no further useful life and that Hydro was effectively writing off the net book value and amortizing these and the removal costs over three years. He said that such a three-year amortization is technically consistent with accounting practice but that a ten-year period would provide better rate smoothing and would be more consistent with Hydro's previous treatment in writing off the cost of Wesleyville Generating Station and Bruce Heavy Water Plant D. He said the ten-year period would also be

consistent with Hydro's plan, prior to the August 1983 events, for collecting tube replacement costs in rates over a period ending in the 1990s.

Mr. Armstrong considered that Hydro's proposed treatment of the net costs associated with replacement energy was appropriate and should be accepted by the Board. He also recommended approval of Hydro's proposal to capitalize tube replacement costs and to recover them through depreciation over the remaining life of the plant. He submitted, however, that details of the costs involved in this program should be reviewed by the Board in the hearing next year, particularly with respect to interest costs and the amount recovered under the Nuclear Payback Agreement.

Counsel for the OMEA agreed with Mr. Armstrong's proposed treatment of the costs associated with the pressure tube program and agreed also to a review of the various elements of cost next year.

Mr. Genest submitted that the circumstances of the pressure tube removal from Pickering 1 and 2 did not warrant Hydro's Board of Directors making a special ruling to permit deferral and amortization over ten years and claimed that Hydro's proposal would not unduly burden 1985 rates.

The Board accepts that the pressure tubes have no further useful life, but is of the opinion that both the three year period proposed by Hydro and the ten year period proposed by Mr. Armstrong could be supported by generally

accepted accounting principles. The Board agrees with Hydro that the burden placed on 1985 rates by Hydro's proposal is not sufficient to require smoothing over a longer period and therefore recommends acceptance of the proposal. The Board also recommends acceptance of Hydro's proposals for the treatment of tube replacement costs and replacement energy costs.

Mr. Armstrong said that the revenue effect and the appropriate rate-making treatment of the Nuclear Payback Agreement are major problems. Hydro's position is that the agreement requires that its partners - AECL and the Province of Ontario - share in the costs resulting from the tube failure even though the resulting calculation produces a negative payback. The Province has agreed with Hydro's interpretation, but AECL has not and negotiations are continuing. Hydro did not provide information to the Board on the status of these negotiations, claiming that the outcome could be jeopardized.

Mr. Armstrong submitted that the information before the Board was insufficient for it to make a recommendation to the Minister on this matter. He recognized that Hydro's Board of Directors would ultimately need to determine if negative payback will be collectible in order to set rates for 1985. He submitted that if Hydro's Board concluded that negative payback was collectible, then Hydro's proposed treatment should be accepted. If Hydro's

Board concluded that negative payback was not collectible, then an allowance for doubtful accounts should be set up to offset directly the amounts accrued each year in relation to tube removal, tube replacement, and replacement energy.

Counsel for AMPCO submitted that the Nuclear Payback Agreement posed a number of problems and added uncertainty because of doubt as to whether the amount involved would be recovered in the future. Mr. Davies submitted that the agreement should be terminated, because the original capital contributions have been repaid with interest, and that termination should take place before Hydro made major commitments to the rehabilitation program for Pickering 1 and 2.

Mr. Genest noted that in past negotiations Hydro had viewed the cost of buying out the agreement as being too high and that, had the agreement been terminated, Hydro's customers would now be bearing all the costs of retubing rather than sharing them with AECL and the Province. He noted also that Hydro was in possession of a legal opinion that supported its position that a negative payback was in accordance with the agreement. Hydro declined to produce the opinion and the Board upheld Hydro on the basis of solicitor/client privilege. Mr. Genest submitted that the appropriate treatment would be to assume that negative payback is recoverable and that retubing should proceed as planned while Hydro actively attempted to resolve outstanding matters with the other parties.

The Board accepts that there is uncertainty concerning the cost-sharing assumption made by Hydro pending resolution of the negotiations with AECL. In considering prospective rates, however, there are numerous uncertainties, each of which must ultimately be considered by Hydro's Board of Directors on the basis of informed judgement. In this case, negotiations may result in an agreement being reached before Hydro's Board is required to make its decision. However, the Board recommends that if agreement has not been reached then rates for 1985 be based on the assumption that negative payback will accrue to Hydro. The risk of this assumption being proven incorrect is one of the factors considered by the Board in recommending an appropriate level of net income.

Operation, Maintenance, and Administration

Hydro's original submission included $997 million for 1985 OM&A costs which reflected two series of cuts totalling $47 million and that, although the final examination of the budget was not yet completed, Hydro witnesses expected that a further $20-$30 million could be trimmed from its final submission of 1985 OM&A costs of $991 million. Since last year's hearing the 1984 budget has been revised to $914 million. The increase of $77 million for 1985 is attributed mainly to inflation and new nuclear generating units coming into service.

All counsel who commented on the OM&A costs were concerned about the size of the overall budget rather than its specific components. Counsel for Energy Probe recommended a "serious review" of all OM&A costs in future hearings, and Board Counsel and counsel for AMPCO and the OMEA recommended budget decreases of $30-$50 million.

The Board believes that OM&A expenses provide the best area for cost savings, as any reduction is a true saving. In past reports the Board has pointed out that Hydro "should undertake an effective and visible role in combating inflation", and reductions in the OM&A costs provide the best opportunity within its control for meeting this goal.

The Board, however, is also aware that there is a limit beyond which the OM&A budget should not be reduced. Mr. Burdette, vice-president of Hydro, testified: "we are concerned that . . . program reductions are being used to reduce costs [which] could ultimately lead to higher costs in the future." In the Board's opinion, Mr. Burdette's concern in this regard is warranted. However, the way to lower costs is not to remove worthy programs from the OM&A budget, but rather to concentrate on producing true savings in costs. Hydro's goal in the 1980s of a "leaner corporation" can best be met by concentrating on productivity and efficiency. This will serve Hydro's customers in a significant and beneficial manner.

Board Counsel and counsel for the OMEA pointed out that the OM&A budget had not undergone a rigorous review by Hydro's management before submission to this Board. The timing of the hearing dictates that Hydro's critical scrutiny of the branch budgets take place in the summer and fall, after this Board has completed the taking of evidence in its annual rate hearing. Board Counsel noted that during Hydro's review in the fall of 1983 it had removed approximately $50 million from the allegedly irreducible OM&A budget it presented to the Board in June of last year, and he argued:

> "What is unfortunate is that in terms of the rate making process, this Board does not find out about it until it is too late . . . and the Board is left once again this year in the position of attempting to assess the 1985 costs before the estimates have been vigorously reviewed or critically examined by Hydro."

Mr. Armstrong submitted that the Board should measure the reasonableness of Hydro's OM&A budget based primarily on Hydro's previous experience in decreasing the budget during the post-hearing review.

The Board agrees with Mr. Genest's argument that Hydro's Board of Directors should have the most up-to-date information available when it is setting rates and that Hydro's final review of budgets in the summer and fall of each year is appropriate. In recommending a level of OM&A costs the Board must consider the preliminary budget

together with Mr. Burdette's estimate of the expected cuts during the final review and Hydro's forecasting record.

Taking into account all the factors outlined above, the Board expects that the OM&A budget presented to Hydro's Board of Directors will be adjusted by the $30 million referred to by Mr. Burdette and recommends acceptance of the reduced amount.

During testimony, Hydro produced in evidence the results of an opinion survey covering, among other topics, its employees' views on their productivity, salaries, and benefits. The results showed general satisfaction with salaries and benefits, but a high percentage of the employees were apparently dissatisfied with the low level of their productivity. Hydro has begun a campaign to meet this problem, and the Board is of the opinion that it is management's duty and responsibility to direct and motivate its employees and the Board will expect to see tangible results of this effort in next year's hearing.

Fixed Charges

Hydro's original submission included $2,140 million for fixed charges which included depreciation and amortization, interest, and foreign exchange. The issues discussed also included accounts receivable, borrowing, decommissioning charges, interest capitalization rate, heavy water inventories, and capital costs.

Depreciation and Amortization

Board Counsel and counsel for Energy Probe and OMEA criticized Hydro for inconsistency in applying its depreciation policies to surplus generating and heavy water facilities. The result, argued Board Counsel, was that there "is no accountability and no assurance of fair treatment . . . between one generation of ratepayers and the next." He submitted that the solution was to treat all surplus facilities as a group and amortize their remaining undepreciated capital costs over a ten-year period. Counsel for the OMEA agreed and argued that consistency was necessary to permit year-to-year comparison of financial statements.

Hydro submitted that it followed a reasonable and understandable depreciation policy that had been approved by this Board in its interim report dated March 13, 1978 (H.R. 5). In that hearing, the policy recommended by Hydro and approved by the Board was to:

> "allocate the service costs of major fixed assets to the costs of power in direct relation to the benefits provided by these assets to customers, where service cost is considered to represent original cost plus all other significant and recognizable costs and recoveries which are related to an asset's service use."

The Board has prepared Table 5 to illustrate the present accounting treatment of Hydro's excess heavy water plants and generating facilities and the impact on the revenue requirement of Hydro's policy.

Hydro has created a variety of classifications in which some facilities have been "mothballed", "stopped and stored", "placed in frozen reserve", or "cancelled or delayed". Board Counsel in particular was highly critical of the accounting treatment used by Hydro for these classifications. He argued that the list is "limited only by the finite number of plants in Hydro's system and the creative abilities of Hydro's management." In reviewing the treatments accorded the various facilities the Board must be guided by Hydro witnesses in determining the usefulness or potential usefulness to the system of any particular facility. Hydro's classification of its excess facilities is a question of system planning, not of accounting procedure.

Board Counsel argued that the Board should recommend that the remaining book value of all Hydro's surplus generating facilities be deferred and amortized over a ten year period. The Board is of the opinion that this inflexible approach is inappropriate as accounting principles applied in such circumstances must provide latitude to mitigate the impact of such decisions.

For rate-making, however, the Board is of the opinion that, as none of the facilities currently designated as excess is scheduled to return to service within the next decade, the excess facilities should be subject to a separate accounting policy. Although Hydro claims that it uses similar accounting tests for each of its excess facilities,

ACCOUNTING TREATMENT OF EXCESS FACILITIES

Table 5

Asset	Status	Accounting Treatment	Net Book Value at December 31, 1984 ($ millions)	Included in 1985 rates ($ millions)
Generating Stations				
HEARN	Mothballed			
Units 1-5		Fully depreciated	-	-
Units 6-8		Depreciation to 1985	17	14
KEITH				
Units 1-4	Mothballed 1984	Depreciation to 1985	24	23
LENNOX				
Units 1 & 2	Mothballed 1982)		355	16
Units 3 & 4	Mothballed 1980)	Depreciation to 2006		
WESLEYVILLE				
Units 1 & 2	Cancelled 1978	Written off to operations in 1978	-	-
Units 3 & 4	Cancelled 1980	Written off to operations 1980	-	-
Remaining Assets		Amortized over 10 years starting in 1984	41	4.1
THUNDER BAY				
Unit 1	Mothballed 1984	Depreciation to 1993	13.6	1.4
Heavy Water Plants				
BRUCE A	Mothballed 1984	Written off to heavy water inventory in 1984	91*	N/A
BRUCE C	Cancelled 1975	Written off to net income in 1975 and 1976		
BRUCE D	Stopped and stored	Written off to operations over a 12 year period commencing in 1982	352**	35.2
Combustion Turbine Units				
SCOTT	Mothballed 1981	Depreciation through 1985		
MANBY	Mothballed 1981	Depreciation through 1985	7.1	5.9
DETWEILLER	Mothballed 1981	Depreciation through 1985		

Notes

* As at December 31, 1982
** As at December 31, 1983

the procedure has not been separately codified. The Board is of the opinion that codification would assist in making Hydro's accounting policies understandable, particularly given the significant book value of the excess facilities.

The Board therefore recommends that Hydro prepare a specific accounting policy for its excess facilities whereby the amortization period for each of these plants is determined on the basis of the following:

- its impact on customers,
- its impact on Hydro's financial soundness, and
- any particular rate-making principles that may be suggested by reason of the asset involved.

The Board is not prepared to recommend any overall changes to Hydro's accounting treatment for its excess facilities as the Board will expect Hydro to address this subject in next year's hearing in light of the recommended policy change.

The Board is concerned that the accounting treatment for Lennox Generating Station should however, be dealt with, at least in part, in this hearing. Lennox is "mothballed", and a study by Hydro forecasts that it will not be returned to service for at least twelve years, although its depreciation continues until 2006. The Board is of the opinion that the Lennox study provides little support for the continued depreciation because of the uncertainty associated with any forecast of events so far into

the future and because it finds that Lennox will not be needed until 1997 and then only for approximately 5 percent of its annual capacity. Since there would seem to be at least an equal chance that the station will not be required, the Board recommends that Hydro cease depreciating Lennox and amortize it over a much shorter period commencing in 1986.

In applying its amortization policy, the Board recommends that Hydro avoid, as much as possible, the unreasonable pushing off to the future of costs that should be included in present rates. The Board believes that this has occurred in the treatment accorded the heavy water plants.

Hydro considers its heavy water operations to be separate and all costs are built into the inventory from which heavy water is transferred to the generating stations and capitalized. In applying the policy, serious consideration should be given to its effect on future customers, as in the case of Bruce Heavy Water Plant A, which is currently written off. Hydro transferred the amount of the write-off to the value of the heavy water inventory, thus postponing part of the cost recovery until at least 2040, when the last of the heavy water in service is projected to be charged to operations. Regardless of the soundness or otherwise of this policy, this is far too long a period over which to stretch costs of this nature. The effect of interest

accruing on these costs will unreasonably inflate them. The Board repeats its recommendation contained in H.R.12 that "the undepreciated value [of BHWP A] . . . should be deferred and amortized over ten years".

Foreign Exchange

Counsel for the OMEA submitted that Hydro should prepare an extensive review for next year's hearing of its hedging policy, which provides that Hydro purchase U.S. dollars, prior to their being needed, in order to avoid foreign exchange losses at the time a U.S. dollar obligation becomes due. Board Counsel pointed out that Hydro's 1985 unrealized foreign exchange losses were expected to exceed $776 million. He advocated that Hydro should consistently hedge its exposure to foreign debt and use the short-term, futures, and options markets to minimize its exposure. He suggested that in the longer term Hydro consider currency "swaps". This practice, he argued, effectively denominates all foreign currency borrowings in Canadian funds and therefore eliminates speculation because the foreign currency loss is determined at the time of borrowing.

Hydro agreed that its hedging policy is designed to minimize risk, but both Mr. Genest and counsel for the OMEA disagreed with Board Counsel's approach. However, Hydro consented to monitor the currency swap market and to consider its use if and when appropriate. Mr. Genest also

said that Hydro's hedging policy is under study and that the results will be filed in next year's hearing. The Board therefore recommends acceptance of Hydro's hedging policy for 1985.

Accounts Receivable

Board Counsel pointed out that accounts receivable are forecast to increase by 11.4 percent in 1985 while customer sales, which are primarily related to sales to municipal utilities, are expected to increase by 11.1 percent in the same period. He argued that municipalities which do not pay their bills on time are placing an extra burden on all municipal customers and that a list of such municipalities should accordingly be made public. Hydro's counsel disputed Board Counsel's calculations on the growth of accounts receivable, stating that his figures were based on December power sales, not annual sales, but he made no comment on publicizing such a list.

The Board is of the opinion that Hydro should continue its efforts to obtain an amendment to the Power Corporation Act to allow it to charge a more appropriate interest rate on delinquent accounts. However, the Board should not have to order the identification of the delinquent accounts in a public hearing, as it believes that this is within Hydro's own power if it so desires.

Borrowing Program

Counsel for the OMEA argued that Hydro should provide forecasts of capital availability disaggregated by short, intermediate, and long-term markets for Canada and the United States. Hydro pointed out that it had attempted this for the Canadian market, but since the data were incomplete the statistical results were unsatisfactory. The OMEA also requested that Hydro provide a long-term planning strategy for its borrowing requirements. Mr. Genest noted that a general outlook for borrowing was provided but added that, because any such study required constant updating, Mr. Schwartz's suggestion would provide little reliable information beyond the four-year horizon currently included by Hydro in its pre-filed material.

In regard to the OMEA's argument, the Board assumes that Hydro will continue to exercise good business practice and will, if possible, provide material in the form suggested.

Mr. Genest termed as "nonsense" the argument of Mr. Reed that Hydro's debt program was out of control and was squeezing other vital needs in the province such as health care, education, and housing. The Board is well aware that Hydro's borrowing program is approved by Order-in-Council and as such, considers it to be beyond the Board's jurisdiction.

Decommissioning Charges

ONGA was highly critical of Hydro's progress in determining the precise cost of decommissioning nuclear stations, and it recommended that Hydro immediately commence a series of detailed studies to examine the entire issue of nuclear decommissioning, including the process, its costing, and the recovery of costs in rates.

Counsel for ONGA submitted that Hydro's original study on the cost of decommissioning was meant to be a preliminary document, but that it had not been updated since it was completed in 1981. He pointed out that the document called for specific decommissioning estimates for each nuclear generating station; a detailed inventory of radioactive material for the Pickering A plant; development of low-, medium-, and high-level waste disposal repositories suitable for decommissioning waste; a plan and budget for a research project to investigate decontamination methods; and a detailed decommissioning study of conventional thermal and hydraulic generating stations.

Board Counsel recommended that Hydro update its study and that it present the results in next year's hearing, with periodic reviews every five years thereafter. Energy Probe endorsed Board Counsel's argument.

Hydro indicated that the initiation of comprehensive and costly engineering studies, in the absence of technological or political developments since the last study

was completed, would be unproductive. Mr. Geneat indicated that Hydro would perform detailed calculations prior to any decommissioning activity and that it was continuing to participate in studies with AECL concerning the repository sites available for irradiated waste. In regard to conventional thermal generating stations, Hydro's present estimate was that the expected salvage value of such stations would equal the removal costs.

The Board reviewed the entire matter of nuclear decommissioning in its 1981 report (H.R. 10) and, though seeing merit in Board Counsel's suggestion that the costs should be reviewed periodically, will not recommend that Hydro undertake such a study at this time.

Interest Capitalization Rate

Board Counsel submitted that Hydro should review the appropriate cost rate for the proportion of capital costs funded by internally generated funds and provide the Board with the results in next year's hearing. He submitted that Hydro's present practice may lead to inter-generational and inter-class inequity; future customers are required to pay interest on such funds raised from present customers, at the same rate as the cost of raising debt from external sources. In its reply argument, Hydro took the position that, as internally generated funds can notionally be used to repay debt or to avoid new debt, the cost of external

debt is a good proxy for the cost of such funds. This practice is widely used by Canadian electrical utilities, and Hydro submitted that there was insufficient basis at this time for undertaking an extensive and costly review of its present interest capitalization policy.

The Board is of the opinion that the cost of external debt is only one factor to be used to determine the cost rate for internally generated funds. External funds include a risk factor which, in Hydro's case, could be greater than any risk on internally generated funds. The Board therefore recommends that Hydro reconsider its policy and present alternatives at next year's hearing.

Heavy Water Inventories

Board Counsel, counsel for Energy Probe and OMEA argued that Hydro's present accounting treatment for heavy water inventories pushed large costs into the future, thus creating inter-generational inequities.

The Board agrees with Hydro that it should maintain a minimum future-use inventory of heavy water for insurance and that future customers thereby obtain a benefit. As outlined in last year's report (H.R. 12), Hydro has reduced its future-use inventory targets quite substantially, and the Board does not feel that it can make an informed judgement as to its proper level. It therefore accepts Hydro's submission in this regard. However, as outlined in

H.R. 12, the method of financing heavy water appears designed to have a minimum impact on present rates, with the result that future rates are disproportionately impacted.

Mr. Genest argued that Hydro's inventory of heavy water contains a margin for insurance against production shortfalls, demand timing or quantity and thus is properly charged to future customers, not present customers. Board Counsel argued that the inventory contains 276 megagrams of heavy water not required for a specifically identifiable facility and that interest and depreciation on this portion should be charged as an expense to present rates. The OMEA agreed with Mr. Armstrong. Energy Probe submitted that Hydro should write off the "surplus" heavy water over a reasonable period, that current nuclear operations should pay the average price for heavy water and that in-service heavy water should be depreciated over the life of the plant in which it is being utilized.

The Board has already commented on Hydro's propensity to postpone heavy water costs and it again urges Hydro to develop an appropriate accounting policy that properly addresses inter-generational impacts.

Capital Cost Control

Hydro, pursuant to a recommendation in the H.R. 12 report, filed in this hearing a comparison of its capital cost control measures with those of four U.S. utilities. Board

Counsel criticized the report because the utilities cited were not comparable to Hydro and because information was apparently not available to determine how those utilities put their cost control measures into practice. Board Counsel also pointed out the difficulty of examining Hydro's capital cost control procedures in the context of a rate hearing and stressed that capital cost control "is likely to continue to be a significant problem for Hydro".

The Board is satisfied that the material filed by Hydro in this hearing is an adequate response to the H.R. 12 request. It dealt with a massive and complex subject in an informative manner. However, the Board recommends that the Minister consider a separate reference on the subject of capital cost control, as it cannot be fully examined within the time constraints of a rate review hearing.

Financial Policy

The handling of certain costs encountered by Hydro was an important issue at the Board's hearing. In this section the Board will look at the way Hydro deals with costs associated with training personnel, storage during construction, commissioning energy, and foreign exchange gains or losses on debt redemption; its provisions for future costs associated with irradiated fuel management and decommissioning, and at its plans for contingencies.

Training Costs

The cost of training initial personnel for new facilities is capitalized as part of the cost of the related facility and written off over its estimated service life. While capitalization was accepted by the Board in H.R. 12, it recommended a ten-year amortization term rather than Hydro's service-life proposal.

Hydro reconsidered this question in a paper that discussed four alternative amortization periods and concluded that its present policy is appropriate.

Counsel for Energy Probe disputed this conclusion and suggested that it was a technique used by Hydro to "unfairly shift costs to future customers" to the benefit of present customers. He said that generally accepted accounting principles were flexible enough to allow a considerably shorter write-off period and cited the airline industry as an example.

While the Board continues to believe that a shorter period is justified, its review of the evidence leads it to a conclusion that Hydro's proposal does not unduly prejudice future customers and, in any event, the financial impact is relatively small.

Storage Costs

In the event of a slowdown in the construction of a major facility, costs may arise both through contractual penalty

provisions and as a result of storing materials and equipment on the site in advance of their being incorporated into the construction. Hydro's policy is to treat penalty payments as operating expenses but to classify storage costs as carrying charges to be capitalized as a cost of the construction.

Mr. Armstrong submitted that storage costs should be treated in the same manner as penalty payments.

In the Board's opinion, the cost of storing materials and equipment when construction is delayed is a charge that is clearly distinguishable from a contractual commitment to a penalty payment in the event that delivery cannot be made at a specified date. The Board, accordingly, accepts Hydro's proposed treatment of storage costs.

Commissioning Energy Costs

Hydro's treatment of the cost of energy produced during commissioning is consistent with the accounting policy examined in last year's hearing (H.R. 12).

While there was general acceptance of the concept of a commissioning energy cost, counsel for AMPCO submitted that, because 1985 was the peak year for operating cost increases related to the coming into service of new generating units, a more equitable allocation of costs would result if the projected $30 million charge was deleted. Mr. Davies said this would result in those benefiting in the

longer term being responsible for commissioning energy costs.

The Board reaffirms its acceptance of Hydro's accounting policy in this regard.

Exchange Gains or Losses on Premature Retirement of Debt

Board Counsel, supported by counsel for the OMEA and Energy Probe, submitted that foreign exchange gains or losses on debt redeemed prematurely should be amortized over the remaining life of the debt retired. Hydro's policy, which was examined in H.R. 12, is to use an amortization period corresponding to the average life of replacement debt issued in the previous calendar year. In the H.R. 12 report the Board recommended that Hydro employ the same amortization term adopted by counsel in the current hearing. Hydro's response was that such treatment would be inconsistent with generally accepted accounting principles.

The Board has re-examined this issue and is of the opinion that the evidence does not justify a reversal of its recommendation given in H.R. 12.

Provisions for Irradiated Fuel Management and Decommissioning Costs

In response to a Board recommendation in its H.R. 12 report, Hydro undertook a study of the financial treatment of the

provisions for the recovery of future costs associated with irradiated fuel management and decommissioning, to determine whether these amounts should be classified as debt or equity. The study concluded that the provisions should be classified as liabilities rather than equity and should be regarded as debt in calculating the debt-equity ratio.

While Energy Probe supported Hydro's position, Board Counsel argued that the provisions should not be included either as debt or equity in determining the ratio. He said that if a cash fund were established for these provisions it would be considered equity, and if no such fund exists the obligations should not be regarded as existing debt.

The Board is satisfied that a future liability is established by the provisions, that it would be unreasonable to include them as equity, and that, in assessing financial soundness through the debt ratio, they should be considered as debt.

General Observations

Counsel for AMPCO argued that Hydro should not include the reserve for stabilization of rates and other contingencies in the statutory debt retirement provision. He said that AMPCO "does not accept the categorization of reserve funds supplied by customers as corporate indebtedness."

In his argument, counsel for Hydro explained to the Board's satisfaction that the Power Corporation Act

authorizes the present treatment, which is to regard the funds not as debt but as the restoration of "any reserve or other funds of the Corporation utilized for the payment of the cost of works" as provided for in that act.

Energy Probe reiterated its concern that Hydro was not adequately insured against the remote but extreme risks associated with nuclear generation. In the Board's opinion the only practical way of dealing with this uncertainty is by a periodic and thorough assessment of risk by Hydro and its expert advisers, with the cost of a reasonable degree of protection shared fairly among current and future customers. There is no evidence that Hydro's practice is contrary to this principle.

Net Income

Hydro's annual net income is comprised of a statutory debt retirement fund and a discretionary provision for the "stabilization of rates and contingencies". Hydro's policy is that it should forecast net income requirements, apart from the debt retirement provision, by considering criteria of financial soundness, the availability of capital, and the level and pattern of rate increases. It proposed a net income level of $360 million for 1985.

Hydro's financial soundness is indicated by the debt ratio, the level and quality of interest coverage, and the cash flow coverage ratio. The participants were divided

on the relative importance of these indicators. Hydro considered that, while all three should be assessed, the primary indicators are the debt ratio and the interest coverage ratio. Both Board Counsel and counsel for AMPCO regarded the cash flow coverage ratio as the most important factor - the former because he sees this ratio as the best indication of Hydro's ability to service and repay its debt over the long term, the latter because Hydro's construction activities are winding down.

Hydro has established a financial soundness target which includes an interest coverage level of 1.05 on interest charged to operations and 1.50 on capitalized interest, based on advice from its financial advisers, whose views were canvassed thoroughly in last year's hearing (H.R. 12). The quality of interest coverage, with a projected ratio of 0.60, represents the interest that is included in rates as a percentage of the total gross interest expense. The long-term target for the debt ratio is not higher than 0.80. All these ratios are assessed by the financial community in addition to the cash flow coverage ratio, which indicates the coverage of interest payments by cash from operations. Increases in the cash flow and interest coverage ratios and decreases in the debt ratio indicate increasing financial soundness.

Hydro admitted that financial soundness would be below target levels in both 1984 and 1985. Indicators for

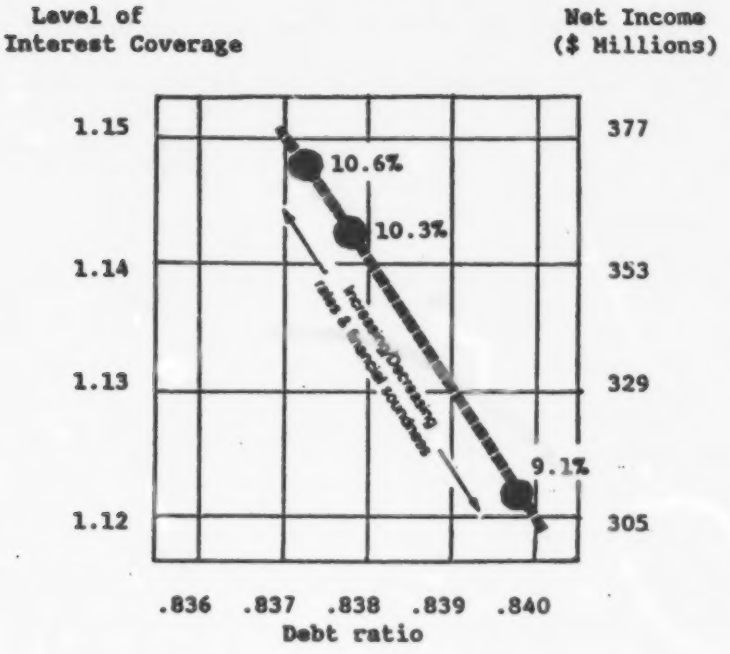
1985, and the projected net income are given in Table 6, based on Hydro's 9.1 percent rate increase proposal.

Table 6

	As filed	Updated
Level of interest coverage ratio	1.15	1.12
Debt ratio	0.832	0.840
Quality of interest coverage ratio	0.60	0.60
Cash flow coverage ratio	1.08	1.04
Net income ($ millions)	360	308

Hydro said that, after consideration of several scenarios, and after an assessment of its financial forecast for 1984-7, it planned to move toward financial soundness by 1987 with a "relatively stable pattern of rate increases" and to hold the 1985 debt ratio to that forecast for 1984. To achieve its financial soundness targets in 1985 would, on the basis of Hydro's final submission, require a rate increase of 15 percent. A 10.6 percent increase would be required to achieve the interest and cash flow ratios shown in the original proposal if the debt ratio was held at the currently forecast 1984 level of 0.837.

The following chart indicates the relationship between the net income and the interest coverage and debt ratio indicators based on Hydro's final submissions.



Source: Exhibit 1.32

Hydro considered itself tied to a 9.1 percent increase, because only that proposal had been approved by the Board of Directors. However, it did not suggest that a net income level of $308 million, which results from the updated financial information filed by Hydro during the hearing, was adequate. Mr. Bartholomew said that, had Hydro targeted a net income level much lower than $360 million, "then . . . recovery to our target financial soundness position by 1987 was probably not achievable" without "double digit" rate increases in 1986 and 1987. Also, Mr. Geneat in his argument urged the Board to assess "the trade offs between financial soundness and rate increase

considerations" and suggested that a net income level of $360 million "would result in improved financial soundness and a reduced need for a higher rate increase in 1986."

In addition to examining the factors considered by Hydro in establishing a net income level, counsel for both the OMEA and Energy Probe submitted that there should be explicit consideration given to equity among generations of customers to ensure that costs that should be absorbed by today's customers are not unreasonably pushed off to the future. While the Board accepts Hydro's explanation that this aspect is reviewed in establishing accounting policies, it recommends that specific attention should be paid to inter-generational equity when assessing net income.

There were a variety of views on the appropriate level of net income. Counsel for ONGA submitted that Hydro should not "trade off" financial soundness to a greater degree than it currently has and recommended that the rate increase be no less than 9.1 percent.

Counsel for Energy Probe said that Hydro must improve its financial soundness indicators and urged the Board to recommend an improved debt ratio.

The OMEA recommended that Hydro review the basic principles of its net income policy before the next hearing. Its counsel also suggested examination of the use of the reserve for stabilization of rates and contingencies as a cushion against unexpected cost increases, and the

market perception of what is required for Hydro to be viewed as self-sustaining and independent of the Province. He noted the dramatic decline in the 1984 and 1985 net income projections during the hearing, as well as the reductions in Hydro's costs that have been proposed by the participants, and recommended that the level of net income proposed by Hydro for 1985 not be reduced.

Both Mr. Reed and Mr. DiSanto submitted that the 1985 bulk power rate increase be limited to 5 percent which, they said, was the projected rate of inflation. The Board rejects this submission since it would seriously impair Hydro's financial soundness.

Counsel for AMPCO stressed the need to moderate net income requirements during periods when large new facilities were coming into service and submitted that the financial indicators would improve in the years beyond 1985. He said that there should be no net income provision beyond the debt retirement provision which, he submitted, should be adjusted to $232 million. The Board considers that this level of net income would have a serious impact on Hydro's financial soundness and rejects the proposal.

Board Counsel noted that Hydro had rejected a Board recommendation in last year's hearing (H.R. 12) to establish net income for 1984 at $350 million and had at that time indicated that Hydro would require only $240 million in 1985. He submitted that Hydro had avoided "any

realistic discussion of the parameters of the net income issue" and that there was no evidence to suggest that Hydro's financial health was of concern to the financial community which "looks through Hydro to the Province".

Mr. Armstrong said also that large new amounts of depreciation becoming available for use by Hydro would result in improvement in the cash flow coverage ratio in years beyond 1985. He said: "in periods [when] Hydro is bringing large nuclear units into service, to look only at the level of net income is to ignore the reality of the tremendous cash resources that are being generated through depreciation, which should provide a great deal of comfort to the investor." This view was supported by AMPCO. Mr. Armstrong concluded that Hydro was well received in the capital markets and required a net income no higher than $240 million in 1985.

Mr. Genest, for Hydro, submitted that the net income recommendations of Board Counsel and AMPCO were inappropriately low. He said that Hydro sets its requirement one year at a time and that the $240 million adopted by Mr. Armstrong was just a preliminary figure for one year of a four-year financial forecast. He said also that net income at the levels suggested would seriously lower the indicators of Hydro's financial soundness and its ability to achieve target levels within a reasonable period of time.

Counsel for Hydro also contested Mr. Armstrong's view that funds from depreciation expenses should be available to cover interest over the long term and said that investors look to the interest coverage ratio, which does not include depreciation, for the best indication of financial soundness. He said that Hydro's net income policy had been the subject of two major studies in the past ten years and had been fully reviewed in last year's hearing.

The Board has carefully reviewed the evidence and the submissions of the participants concerning a reasonable net income level. It agrees with Hydro that reliance on the preliminary figure of $240 million given in last year's hearing is not appropriate, particularly in light of the large and frequent changes in net income projections that result from the fact that net income is the residual figure in the revenue requirement calculation once the rate level is set.

In the Board's opinion, AMPCO's suggestion that the net income level not include an amount greater than the statutory debt retirement provision would result in a loss of investor confidence. The Board does, however, recommend that Hydro review, at next year's hearing, the function of the reserve for stabilization of rates and contingencies and, in light of the wide authority granted Hydro in Section 16(2) of the Power Corporation Act, more clearly identify the circumstances under which it would be used.

The Board also considers it necessary that expert opinion on the use and significance of depreciation in indicating financial soundness and in the determination of net income be developed by Hydro for next year's hearing. In its opinion, Mr. Armstrong's submission raises questions that are not answered by the evidence in this hearing.

Subject to the qualifications in the three preceding paragraphs, the Board does not consider that a full review of net income policy is needed for next year's hearing.

The Board has reviewed the impact on rates and on the indicators of financial soundness and has concluded that a level of net income in 1985 of $350 million is reasonable. The levels suggested by Board Counsel and AMPCO make the achievement of target levels very difficult within a two- to three-year period without rate increases in 1986 and 1987 significantly higher than that recommended for 1985. In addition, the Board considers that, in a number of important areas, there is a risk of cost increases that may make it difficult for Hydro to achieve the suggested level of net income. These risks include the uncertainty involved with Hydro's interpretation of the Nuclear Payback Agreement which results in a "negative payback," the possibility of the economic recovery stalling and thus affecting primary sales, the possible understatement of costs associated with the pressure tube replacement program, and the cost of possible delays in getting the affected units into service.

PROPOSED RATES

Hydro presented its 1985 rate proposals in the context of a "gradual" modification in its entire method of setting rates. The Board will first discuss the "gradualist" strategy and its ramifications and then consider Hydro's and the participants proposals for cost allocation, customer classification, the demand-energy ratio, coincident demand billing, the assigning of diversity benefits, special-condition rates, and (in a brief general section) several other issues.

Background

Hydro stated that its rate proposals, set out in Appendix A, reflected the implementation of some of the changes necessary to establish fully the costing and pricing principles and objectives that have evolved over the past ten years and that form part of its long-term strategy. Hydro stated that, because of the concerns expressed in 1982 and 1983 by customer groups, by the government, and by the Board about the introduction of time-differentiated rates, an emphasis on the energy component of rates, and cost allocation modifications, it was now proposing a more gradual approach, with full implementation of the policies "stretched out over the next several years".

The 1985 rates submitted by Hydro incorporate its proposals for modifications in the allocation of costs to functions and from functional costs to customers; a 50:50 capacity-energy ratio; the retention of the existing customer classification system; and changes introduced in 1984, such as an intermittent and a monthly experimental rate. Time-of-use rates and a method for splitting common costs between demand- and energy-related charges for rate design were not included for 1985 but will be proposed at a future date. Most of these proposals are discussed in detail in this section.

Hydro's "gradual" approach to rate change was opposed by most participants and Board Counsel on the basis that it created uncertainty and confusion. Mr. Armstrong recommended that the Board "urge Hydro in the strongest possible terms" to implement all the major rate changes as soon as possible. Mr. Schwartz said that, while the OMEA was sympathetic to the difficulties involved and the concerns of the parties, it believed that Hydro should not let impact considerations and the objective of customer acceptability prevent it from implementing time-differentiated rates and the related changes. He said also that changes made independently, and at a slow pace, could result in hardship for specific customers greater than the impact if a package of changes were implemented.

AMPCO also expressed concern about the "unspecified path" that Hydro was on, and Mr. Lind, one of its witnesses, spoke of the uncertainty Hydro's policy of gradualism caused for direct customers. Mr. Poch reaffirmed Energy Probe's support of time-differentiated rates, including seasonal rates.

Mr. Palmer (Hydro) said that there were no firm plans for 1986 and that the implementation period could stretch to seven years or more, although he hoped that most changes could be accomplished in two to three years.

The Board concludes that even if the final objectives are clear, a plan for implementation is not. This leads to a concern that, somewhere along the path, Hydro will conclude that its long-term objectives are unrealistic because of customer resistance and will be forced to make a basic shift in plans. There is no guarantee that the piecemeal changes proposed will fit into a basically altered plan. For example, to implement coincident demand billing rather than time-differentiated rates could make some of the proposals redundant or otherwise inappropriate.

The Board does not criticize Hydro for its desire to achieve customer acceptability and recognizes that, as Mr. Genest said, if Hydro itself had its own choice it would implement the entire package as soon as possible "and have done with it". The Board also agrees with Hydro that smoothing of the effect of rate changes is an important

consideration, especially if this will assist the implementation process by helping to make the rates understandable and acceptable to customers. Nevertheless, there are formidable dangers in the policy of gradualism that Hydro must recognize. Electricity is vital to the provincial economy, and so uncertainty about rate structure adds to apprehension and confusion about our economic future and should be avoided.

The Board urges Hydro to use every effort to convince customers and the public of the appropriateness of its rate design objectives. If it is unable to obtain sufficient support, then Hydro should modify or abandon the unacceptable aspects of its rate design objectives and remove the uncertainty.

The Board accepts the principle of gradualism in making basic changes to rate design, but Hydro should establish and make public a clear time frame with acceptable objectives.

Cost Allocation

Hydro proposed new policies and procedures for the allocation of costs to functions and for the allocation of functional costs to customers which in its opinion would further refine cost tracking.

There was general agreement with these proposals. However, Mr. Schwartz (DMEA) was concerned that only

50 percent of the cost impact of the allocation changes with respect to municipal distributors' distribution stations, power district distribution stations, and distribution lines was included in 1985 rates in order to reduce the impact on certain customers in the Power District (the direct customers plus the rural distribution system). He argued that the full effect (an additional $17 million) should be implemented.

Hydro submitted that the 50 percent phase-in represented a reasonable concession to customers and was consistent with a preference expressed by the Board in its H.R. 12 report. The Board agrees with Hydro's proposal but expects the cost transfer to be completed in 1986 rates.

In his argument, Mr. Genest, responded to a concern expressed by the OMEA about the need for a pricing system under which a municipal utility could negotiate the purchase of a distribution station. He noted the evidence that, in the future, the purchase price of such stations would be the net book value plus an amount for equity. The Board recommends that a system for determining the purchase price be established by Hydro in conjunction with the OMEA.

Subject to these comments, the Board recommends the implementation of Hydro's cost allocation proposals.

Customer Classification

In its report on costing and pricing (H.R. 5) the Board recommended that "a single customer class be adopted at the bulk power level consisting of the municipal utilities, the present direct industrial customers of Ontario Hydro, and the rural retail system as one customer", which it considered would deal appropriately with the load diversity equity problem and would be complementary to time-differentiated rates.

Since that report, Hydro has continued its single customer class comprised of the municipal utilities together with the Power District as a notional distributor that includes the industrial customers and the rural retail customers. In recent hearings the Board has urged Hydro to study customer classification because of the perceived inequity in the sharing of diversity benefits resulting from the present classification and load coincidence assumptions. In response to a recommendation in last year's report (H.R. 12), Hydro prepared a study, based on load data for 1982, that examined customer classification alternatives, including that recommended by the Board in H.R. 5 and the present system. Hydro concluded from the study that "the current system of classifying bulk customers allows rates to track costs most accurately, given the approximations inherent in the existing relatively simple rate structure," and noted that its 1985 rate proposals would not change the relative rankings.

Mr. Uhler, testifying on behalf of the OMEA, questioned the statistical basis for Hydro's conclusion. He mentioned, among other alleged shortcomings, the study's use of partial data for only 1982 which might not be representative. He also questioned the statistical analyses done on the data which, he said, could have led to an inappropriate conclusion as to the extent to which one system tracked costs better than another. He suggested alternative statistical tests that he considered would be more significant. Mr. Uhler did agree with Hydro that its study was "the most comprehensive analytical study of the customer classification issue that has been done to date".

Mr. Uhler felt strongly that it was appropriate to adopt the Board's H.R. 5 customer classification proposal as a step in the right direction, without waiting for the major rate revisions to be implemented. He held this view even though, in the H.R. 5 report, the Board had linked its customer classification proposal to the implementation of time-differentiated rates.

Following Mr. Uhler's testimony, Hydro developed and provided additional statistical tests, some of which had been suggested by Mr. Uhler, which indicated that the basic conclusion in the customer classification study did not change. It was evident, however, that there was no substantial difference in the cost tracking ability of the present system and the H.R. 5 recommendation.

In the Board's opinion, while there may be weaknesses in the statistical basis for the Hydro study, there is no evidence to show a significant preference for the H.R. 5 proposal. The Board accepts that the study does not solve the problem of discrimination among bulk users and agrees with Mr. Uhler that fairness and cost tracking should be achieved by appropriate customer classification, costing, and rate design. However, the Board has concluded from the evidence in this hearing that there would be no advantage in implementing the H.R. 5 proposal at this time and that there could be unanticipated difficulties arising from its use in the absence of time-differentiated rates.

The Board therefore recommends continuation of the existing system until major rate revisions are decided upon and implemented.

Demand-Energy Ratio

The two-part rate used by Hydro for the majority of its sales comprises a demand component that prices the level of power usage and an energy component that is used to price the quantity of energy sold. The determination of the demand-energy ratio or "split" is a controversial aspect of rate design because it involves the judgemental classification of common costs, usually those associated with the generation of electricity.

The traditional method of classifying such costs as demand or energy involves the analysis of the component costs and the determination of those that are fixed and those that are variable. These costs are then directly translated to demand and energy components in the rate design. The rationale is that fixed costs are related to capacity in place and do not vary with the amount of energy produced. Variable costs are assigned to the energy component on the basis that they fluctuate with the production of energy.

The fixed-variable method was advocated by AMPCO, through Mr. Kidd, who testified that only this method would result in rates that truly reflect costs. He said that the rapid increase in fixed costs as compared to variable costs over the last few years as a result of Hydro's major construction program could justify a demand-energy split of 65 percent demand and 35 percent energy. He recognized, however, that this would result in too abrupt a shift from the present 53 percent demand and 47 percent energy split and suggested an initial step in 1985 to a ratio of 56:44.

Hydro contended, as it has in past hearings, that the fixed-variable approach is no longer appropriate. Its witnesses (Messrs. Conway and Palmer) said that the costly, high-capacity factor generating plants were constructed to provide lower-cost energy throughout the year, not just at peak periods, and therefore some fixed costs should be

classified as energy in designing rates. They maintained that the fixed-variable approach would benefit the high load factor customers at the expense of low load factor customers and would not equitably track costs and benefits. In addition it would not produce the lowest long-term costs to customers.

Having endorsed the concept of shifting some fixed costs to the energy-related component of rates, Hydro has attempted to develop a method that would determine a fair apportionment. In its 1983 rate proposal (H.R. 11) Hydro presented a method known as the Composite Peaking Plant ("CPP") which the Board at that time found to be "well founded and logical". The Board however, rejected a fixed-variable proposal by AMPCO as not lending "itself readily to time-differentiation of rates", which, as noted, is Hydro's primary rate design objective. In its H.R. 12 report, however, the Board, after a more detailed examination of a modified CPP method, recommended that it be reviewed "as a prerequisite to the acceptance of any rates based on its use." Mr. Palmer could not assure the Board that this review would be completed in time for consideration in next year's hearing.

The Board reaffirms its support for time-differentiated rates and for the principles that underlie Hydro's proposal. It again considers AMPCO's fixed-variable approach to the demand-energy split to be inappropriate for

application to the large generation plants constructed in recent years to provide low variable costs.

For 1985 Hydro proposed a 50:50 demand/energy ratio and emphasized that it was not based on any particular method but was directionally correct and that the degree of change would not produce an unacceptable impact on customers. No proposal has been developed for further movement in 1986.

While no intervenor agreed with AMPCO's position on the demand-energy split, there was considerable support for the view of its witnesses that the lack of an acceptable method, a clearly defined rate objective, and a firm plan for implementation had resulted in unacceptable confusion and uncertainty.

The OMEA proposed a split of 38.5 percent demand and 61.5 percent energy with a further 1 percentage point adjustment each year if supported by a refined CPP method. Mr. Schwartz emphasized, however, that the OMEA's main recommendation was that there be a clear signal in the form of a firm shift to a higher energy component in rates.

Mr. Armstrong urged the Board to reject AMPCO's position and to require Hydro to consider methods in addition to the CPP for computing the demand-energy split and to report on them in next year's hearing. He recommended a ratio of 46.5 demand to 53.5 energy for 1985.

In the Board's judgement, the need for a shift of a portion of the fixed costs to the energy component of rates is apparent; however, the extent of the shift remains in doubt. The Board recommends that Hydro complete its re-examination of the CPP method and, as suggested by Mr. Armstrong, also examine other methods that may support the reasonable allocation of further fixed costs to energy.

The Board recommends that, until there is a consensus on an appropriate method and on a plan for the implementation of basic rate design changes, Hydro not move further on the "gradual path" and that the demand-energy split be maintained at the 50 percent demand-50 percent energy level.

Coincident Demand Billing

Mr. Armstrong submitted that Hydro should implement coincident demand billing as soon as possible as an alternative or complement to time-differentiated rates. While he recognized some definitional and administrative problems, he said that coincident demand billing resulted in a fair sharing of the costs associated with providing power at peak periods.

Counsel for AMPCO and the OMEA considered that coincident demand billing should be studied, but they were opposed to its early implementation because of the serious problems associated with its use. Mr. Schwartz (OMEA) also feared that its use would result in an abandonment of many

of the costing and pricing decisions resulting from H.R. 5 and subsequent work.

Hydro, while recognizing the benefit of coincident demand billing, also noted the associated problems. A major question is the definition of the peak - is it a single hour or a number of hours and will it be disclosed to customers? As Mr. Lemay, an AMPCO witness, noted in his evidence, industrial customers with the flexibility of shifting demand would immediately try to move away from designated peak periods and in so doing could create a peak elsewhere. Serious inequities could arise.

The Board will not recommend that Hydro develop a plan for implementing coincident demand billing for 1985 but does recommend that it commence a detailed study of its potential as an alternative to time-differentiated rates or as a possible complement to such a rate structure and file this in next year's hearing.

The Bary Correction and the Wright Rate Proposal

Mr. Kidd, on behalf of AMPCO, explained the purpose and development of the Bary correction which represents a method to assign more fairly diversity benefits among direct customers. Hydro proposed a Bary-style adjustment of 1.6 mils per kilowatt hour ("kWh") in 1985, which has the acceptance of the customers affected.

Mr. Armstrong, for Board staff, proposed the elimination of the Bary correction on the basis that it was not required with coincident demand billing or for impact relief, that it was arbitrary, and that the need for it was reduced by the "emphasis on energy" in the rate design.

The Board accepts that without a Bary type correction, an unreasonable impact on some customers would result from the rate increase.

AMPCO also recommended that a Wright rate adjustment be introduced into the direct rate structure which, in Mr. Kidd's opinion, would be fairer to low load factor customers. In the Board's opinion, because of the evidence that not more than two customers could benefit, there is not sufficient reason for the adoption of this refinement now.

Intermittent and Blended Power Rates

Hydro proposed the continuation of two special-condition rates that were introduced in 1984 on an experimental basis to attract incremental uses of electricity at times of low system cost.

The Intermittent Power rate is available for a minimum of 500 hours per year in spans of at least three hours' duration, with the proposed rate level one cent per kWh to direct and large retail customers and 0.82 cents to municipal utilities.

The Monthly Power rate is a refinement of a Blended Power rate that was introduced in 1984 and is now discontinued. It is proposed to be available twenty-four hours a day for a contracted period of one month any time between April and November. The rate is set in advance of the contract month in a range of 2.1-2.7 cents per kWh based on the projected power production costs plus a fixed markup. There is an array of conditions attached to its sale to ensure that this rate does not displace potential firm sales. Customers must contract for a minimum of 3 MW and must agree to a minimum-billing provision of 60 percent.

Hydro has made no sales of Intermittent Power since its introduction and only one sale of Monthly Power, 30 MW in April 1984. Its witnesses agreed that the limits on the availability of Intermittent Power and the conditions attached to Monthly Power would limit sales, particularly in 1985, which Hydro regards as a test year for these rates.

ONGA was strongly opposed to the introduction of these rates, primarily on the basis that they could, over time and with increased acceptance, go well beyond the 60 MW limit for 1985 sales and, because of their characteristics, could create a greater problem with respect to peak usage in the future. This view was shared by Mr. Poch of Energy Probe and by Mr. Armstrong, both of whom noted that Intermittent Power in particular was not scheduled for off-peak periods and could require coal-generated electricity at a much greater cost than that contemplated.

ONGA also submitted that there was evidence that power could be sold at a rate that would be less than its incremental cost of generation plus a small contribution to fixed costs. This, Mr. Howe submitted, would be unreasonable and unduly discriminatory. He did not accept Hydro's evidence that, with respect to Intermittent Power, the rate was based on there being nuclear-generated power at the margin for more than 500 hours in 1985 and that there was a reasonable assurance of profitable sales.

Regarding Monthly Power, ONGA noted the evidence that 90 percent of power sold under this rate would be generated from coal and that, in addition to the risk of sales not covering the variable costs of production, Hydro would not be addressing the surplus base-load capacity problem but would be generating power that would not otherwise be produced. Mr. Howe also suggested that time-of-use rates, when introduced, would make Monthly Power redundant.

Energy Probe submitted that no benefit had been gained from these rate classes and that sales would discriminate against all other customers, would generate more acid rain and nuclear waste, and would undercut investment in conservation and efficiency measures.

Mr. Armstrong said that Monthly Power promoted low load factor energy use rather than off-peak load growth and did not reduce the under utilization of base-load capacity. He also submitted that, because of the higher

return, Hydro should concentrate on selling excess nuclear power in 1985 in the export market rather than as Intermittent Power.

The Board accepts Hydro's evidence that, in 1985, Intermittent Power sales will be provided for the most part by nuclear energy, while the Monthly Rate could require the extensive use of coal generated power. In addition, it notes Hydro's commitment that in 1985 it will not intentionally sell power below its incremental cost of production. The Board expects that Monthly Power sales will be limited by the anticipated fuel mix and the resulting monthly price, as well as by the rather onerous conditions of sale. With respect to Intermittent Power, the Board considers that there is a possibility that the incremental cost of power at certain times could be greater than the proposed rates and recommends that Hydro carefully consider the rate level before it is finalized.

Subject to its reservations about the limited sales that are likely to result in these classes in 1985, and the proposed price for Intermittent Power, the Board recommends that these experimental rates be continued. It considers it reasonable and desirable that Hydro investigate the market for sales at times of low system cost, and in particular for the energy generated by the excess nuclear capacity that will be available after 1987. In the Board's opinion, Hydro's proposals represent a cautious and non-

discriminatory approach that is generally consistent with its costing and pricing principles. The Board notes, however, that incremental costs should not be used as the basis for rates for large market segments and expects that these rates may ultimately be replaced by time-differentiated rates based on average costs. This is not a concern, however, for the limited application expected in 1985.

General Observations

The OMEA accepted the principle proposed by Hydro of allocating a fair share of interest expense and net income to non-common facilities, but submitted that these facilities are generally of a lesser risk and that a formula should be devised for possible separate treatment of asset groups. Mr. Genest, for Hydro, while seeing merit in the suggestion, questioned whether a formula could be developed and was opposed to Mr. Schwartz's recommendation that there should be a study in this area filed in next year's hearing.

While the Board generally agrees with Mr. Schwartz, it suggests that the question be left open until some specific problem arises or until there is sufficient indication that the OMEA's recommendation is necessary.

Mr. Armstrong submitted that Hydro's proposals for the allocation of interest, foreign exchange and net income should be accepted for the purpose of setting rates in 1985 but should be re-evaluated in conjunction with a review of

the interest capitalization rate at the next hearing. The Board accepts Mr. Armstrong's submission in this regard.

There was no objection to the discount proposed by Hydro for supply at 230 kilovolts, and the Board recommends its acceptance.

Hydro proposed to replace its practice of refunding or recovering customer class surpluses and deficits within a three-year period with a more flexible system that would monitor current and future surpluses and deficits for the rural and direct customer classes, as well as non-common stabilization amounts, as part of the rate-making process. The evidence indicates that the annual adjustments are not large, and the Board is satisfied that Hydro's proposal is reasonable.

Energy Probe was concerned about the fairness of Hydro's purchase rates for parallel generation (co-generation). The Board considers this to be a matter outside the scope of the hearing. However, this is an important policy issue, and Hydro has offered to review the rationale and basis for parallel generation rates with Energy Probe or others interested in the subject.

Mr. Reed asked the Board to recommend a "life-line" rate, which has the effect of providing a basic amount of electricity at a low rate with escalating rates for volumes consumed in excess of the minimum. These rates would apply to end-use rather than bulk power rates and are therefore beyond the scope of this hearing.

MISCELLANEOUS ISSUES AND COSTS

There were a number of matters raised by the participants that have not been addressed in the foregoing sections of this report.

Both Mr. Reed and Mr. DiSanto submitted that the rate increase should be held to the projected rate of inflation of 5 percent, to be consistent with Hydro's corporate objective and the objectives of the Ontario Inflation Restraint Program.

The Board has already noted that Hydro's corporate objective is to have no real increase in the price of electricity over the decade of the 1980s but that year-to-year differences between the rate increase and the rate of inflation are likely.

The evidence indicates that Hydro is complying with the spirit and intent of the Inflation Restraint Program. Employee compensation has been held to the limits specified in the guidelines, and, as Mr. Genest noted in his argument, cost increases beyond the control of Hydro such as purchased goods or services, interest, depreciation, and taxes are allowed to be passed through to customers under the guidelines.

Mr. Reed also submitted that the Board should recommend that it act in a regulatory rather than an advisory capacity with respect to Hydro's rates and that it

examine the system expansion program. He also said that the appointment of the chairman of Hydro should require the approval of the Ontario Legislature following a standing committee hearing and that the approval of the Legislature should also be required for borrowing by Hydro or by the Ontario government on its behalf. The Board considers that these matter involve questions which are beyond its terms of reference in this hearing and as well are contrary to the legislation in this regard.

Mr. DiSanto also recommended that the Board review Hydro's continuing commitment to nuclear power and address Hydro's waning interest in energy conservation. System expansion is beyond the Board's terms of reference but with respect to conservation, Mr. MacCarthy of Hydro testified that the policy of a "wise but wider" use of electricity was consistent with conservation. He testified that Hydro offers conservation services such as the Residential Energy Advisory Program and other programs aimed at using electricity more efficiently.

Mr. Slater and Rev. Eagle recommended that Hydro rates allocate costs to the users responsible for them, with a larger proportion of costs paid by larger users, and that rates be designed to decrease consumption, particularly for space heating. They also submitted that Hydro should be forbidden from advertising and promoting the use of electricity.

In the Board's opinion, Hydro's stated principles of costing and pricing electricity, which have evolved following years of study and public review, are appropriate. The question of Hydro's advertising and sales promotion has been examined by the Board on several occasions and it does not consider the evidence in this proceeding supports a change from its previous comments. In addition, it has commented earlier on the activities of the Marketing Branch and has agreed with Hydro on the importance of secondary sales and on the need for reducing the base-load capacity surplus.

Mr. Poch asked the Board to award costs to Energy Probe in recognition of its contribution to the rate review process and its unique and non-commercial interest in the proceedings. Board Counsel noted the comments made by the Board in denying such requests in previous rate review reports, but took no position on Energy Probe's request. While the participation of Energy Probe was of assistance to the Board, there were no special circumstances that would support a departure from the recent decisions referred to by Mr. Armstrong. The Board will therefore not award costs to Energy Probe.

The Board notes, however, that it is currently reviewing its practices related to the awarding of costs and is planning a hearing to receive submissions on the subject from interested groups and individuals, including Energy

Probe if it so decides. Notice of this hearing, slated for mid-November 1984, has been issued very recently. It is the Board's intention, following that hearing, to establish new guidelines and procedures for the awarding of costs within its discretion.

As in the past, the costs of the Board will be charged to Hydro.

OPINIONS OF THE BOARD

The opinions and recommendations of the Board are summarized below, with page references, in accordance with the terms of the letter of reference and section 37(a) of the Act.

Recommendations Relating to the 1985 Rate Proposal

Revenue Requirement

Page		Effect on Revenue Requirement $ millions
12	The Board recommends acceptance of Hydro's economic forecast.	--
18	The Board recommends acceptance of Hydro's primary sales forecast adjusted upwards by 1.5 percent.	--
27	The Board recommends that the revenue requirement be reduced by $18 million to reflect higher secondary sales levels and prices than forecast by Hydro.	(18)
33	The Board recommends that the revenue requirement be reduced by $7 million to recognize the potential for increased nuclear production.	(7)
39	The Board recommends that the revenue requirement be reduced to reflect higher-than-forecast power purchases.	(6)
46	The Board recommends acceptance of Hydro's proposals for the rate treatment of pressure tube removal costs, replacement costs, and replacement energy costs.	--

Page		Effect on Revenue Requirement $ millions
48	In the event of no agreement among Hydro, the Province of Ontario, and AECL concerning "negative payback" in the Nuclear Payback Agreement prior to the setting of rates, the Board recommends that the Hydro Board of Directors set the rates on the assumption that Hydro's interpretation is correct.	--
51	The Board recommends acceptance of Hydro's final submission of OM&A costs adjusted downward by $30 million in anticipation of further reductions before budget finalization.	(30)
77	The Board recommends that the proposed level of net income be reduced by $10 million to $350 million.	(10)

The effect of these recommendations is to reduce the 1985 revenue requirement by $71 million. As noted in the Board's comments on net income (page 71), Hydro's original revenue requirement included a net income of $360 million. However, because of changes proposed by Hydro during the hearing, an average increase of 10.3 percent, rather than the proposed 9.1 percent, would have been necessary to produce that amount. Taking all the changes into account, the effect of the Board's recommended adjustments, if accepted, would be to lower the average increase to approximately 8.6 percent.

Page

Cost Allocation and Rate Design

82 The Board urges Hydro to use every effort to convince customers and the public of the appropriateness of its rate design objectives.

83 The Board recommends that a system for determining the purchase price for distribution stations be established by Hydro in conjunction with the OMEA. Subject to this, the Board recommends the implementation of Hydro's cost allocation proposals.

86 The Board recommends continuation of the existing customer classification system until major rate revisions are decided upon and implemented.

90 The Board recommends acceptance of a 50:50 demand-energy ratio for 1985 and further recommends that this ratio be maintained pending consensus on an appropriate method for determining the ratio and on a plan for the implementation of basic rate design changes.

91 The Board recommends that Hydro commence a detailed study of coincident demand billing as a potential alternative or complement to time-differentiated rates.

95 The Board recommends that the Intermittent Power and Monthly Power experimental rates continue in 1985, but that the rate levels for Intermittent Power be carefully examined before finalization.

Opinions and Recommendations Relating to Future Hearings

23 Hydro should ensure that a comprehensive marketing plan, including specific programs and targets, be filed in next year's hearing.

23 Hydro should review the modified dual energy program at the next hearing.

36 Hydro should file a study, in next year's hearing, concerning its coal supply arrangements, including contracts, sulphur content, contingency provisions, and inventory levels.

Page

55 The Board recommends that Hydro prepare a specific accounting policy for its excess generating stations and heavy water plants on the basis of impact on customers, financial soundness, and rate-making principles.

56 The Board recommends that Hydro cease depreciating the cost of the Lennox Generating Station and amortize it over a much shorter period commencing in 1986.

56 The Board recommends that Hydro avoid the pushing off to the future of costs that should be included in present rates and that it amortize the undepreciated value of Bruce Heavy Water Plant A over ten years.

62 The Board recommends that Hydro reconsider its interest capitalization rate policy to assess the risk differential on internally generated funds.

76 The Board recommends that Hydro review, at next year's hearing, the function of the reserve for stabilization of rates and contingencies and more clearly identify the circumstances under which it would be used.

Other Matters

27 The Board recommends that Hydro ensure that a co-ordinated approach be made to marketing secondary sales, with emphasis on longer-term firm contracts.

38 The Board recommends that the next annual review of the operation of the Nuclear Power Demonstration project attempt to quantify the benefits of continued operation.

58 The Board recommends acceptance of Hydro's foreign exchange hedging policy.

58 The Board is of the opinion that Hydro should continue its efforts to obtain an amendment to the Power Corporation Act to allow it to charge a more appropriate interest rate on delinquent accounts.

Comments for Consideration by the Minister

64 The Board recommends that the Minister consider a separate reference to the Board on the subject of capital cost control as it cannot be fully examined within the time constraints of a rate review hearing.

This is APPENDIX A to the Report of the Ontario Energy Board to the Minister of Energy on Ontario Hydro Bulk Power Rates for 1985 dated August 31, 1984.

Ontario Hydro
700 University Avenue
Toronto, Ontario
M5G 1X6

Office of the Chairman

April 9, 1984

The Honourable Philip Andrewes
Minister of Energy
12th Floor
56 Wellesley Street West
Toronto, Ontario
M7A 2B7

Dear Minister:

In accordance with section 37 of the Ontario Energy Board Act, Ontario Hydro hereby submits to you its proposal to change electricity rates to its municipal utility and direct industrial customers, effective January 1, 1985.

The proposed rate increase for municipal utilities averages 9.0 per cent. The increase will vary among the 320 municipal utilities according to individual utility monthly peak demands, energy consumption and service conditions. The expected range of increases is 7.1 per cent to 11.0 per cent.

The proposed increase in wholesale rates for the municipal utilities will probably result in the majority of them increasing the retail rates charged to their customers during 1985. These increases will vary among utilities and will depend, in part, upon their need to cover increases in their own costs.

The proposed rate increase for direct customers averages 9.2 per cent. As is the case for municipal utilities, the increase will vary among the approximately 100 large industrial customers, with the expected range of increases being 2.7 per cent to 10.2 per cent.

The proposed rates are set out in the attached document entitled Proposed 1985 Wholesale Rates for Municipal Utilities and Distributing Companies, and Retail Rates for Direct Customers.

The average "all customers" rate increase, which also covers Ontario Hydro's rural retail customers, is 9.1 per cent. This increase is based upon a total revenue requirement for 1985 of $4186 million, which represents an increase of $474 million over the level expected in 1984. Of this increase, $125 million is expected to be recovered through increased sales volume, leaving $349 million to be recovered through the 9.1 per cent rate increase.

This proposal is put forward at a time when Ontario Hydro's planning environment is significantly affected by the coming into service of a number of generating units at Pickering B, Bruce B and Atikokan. The completion of new generating units following a decade of slow growth in electricity demand has left Ontario Hydro with a surplus of generating capacity in the near and medium term. Accordingly, Hydro continues to be guided by its corporate strategy for the 1980s which calls for a reduced emphasis on the construction of generating facilities, increased emphasis on productivity and cost control, and a more active approach to the marketing of electricity.

The 1985 rate year is forecast to be the peak year for operating cost increases related to the coming into service of new generating units. Increases in 1985 are largely in the form of interest and depreciation charges, partially offset by reduced costs for fuel. In the longer term the new units will have an overall beneficial effect on Ontario Hydro's operating costs.

Other increases in 1985 operating costs arise from continuing inflation and the costs associated with the retubing of Pickering Units 1 and 2 following last year's pressure tube failure.

In order to partially offset the overall increase in operating costs, the rate proposal provides for a level of net income for 1985 which is lower than the actual level for 1983 and the level forecast for 1984.

A number of revisions to costing and pricing policies and procedures have been incorporated in the rates proposed for 1985. In its previous two submissions, Ontario Hydro proposed extensive costing and pricing revisions which were not implemented. While continuing to believe in the appropriateness of the revisions to policies proposed the past two years, the Corporation is not repeating the attempt to implement the same revisions for 1985 rates. Rather, the present proposal represents the first step of gradual implementation over a number of years, of policies and procedures which will meet Hydro's costing and pricing objectives in the longer term.

Sincerely,

Milan Nastich

Milan Nastich

Attach.

Proposed 1985 Wholesale Rates

for Municipal Utilities and Distributing Companies,

and Retail Rates for Direct Customers

Municipal Utilities and Distributing Companies
Recommended 1985 Schedule of Monthly Billing Rates

	1984	1985
Firm Power		
Demand rates ($/kW)		
230 kV	9.59	9.60
115 kV	9.59	9.83
Under 115 kV	-	10.51
50 to 10 kV	10.18	-
Under 10 kV	10.81	-
Energy rate (¢/kW.h)	1.54	1.79
Other monthly charges and credits		
Ownership of low voltage switchgear credit ($/kW)	(0.09)	(0.11)
Specific facility charges		
- lines ($/km)	-	$155
(% of capital)	1.25	-
- distributing stations	-	*
Use of shared distributing stations ($/kW)	-	0.51
Special Condition Classifications		
Intermittent power (¢/kW.h)	0.82	0.82
Monthly power (¢/kW.h)	**	**
Distributing Companies		
Demand rates - Firm ($/kW)		
Gananoque Light & Power Ltd. (44 kV)	10.18	10.51
Great Lakes Power Limited (230 kV)	9.59	9.60
Demand rates - Supplemental ($/kW/day)		
Gananoque Light & Power Ltd. (44 kV)	0.42	0.44
Great Lakes Power Limited (230 kV)	0.40	0.40
Energy rate (¢/kW.h)	1.54	1.79

* As applicable to individual utilities
** Set on a Monthly Basis

Direct Customer Rate Schedule for 1985

1. Main Classifications

Standard Rates:

(a) Demand Rates - per kW of billing demand per month

		Approved for 1984	Proposed for 1985
230 kV	- Firm	$7.14	$7.13
	- Interruptible	6.29	6.19
	- Scheduled-Hour Class 1	2.13	1.39
	Class 2	1.30	.86
115 kV	- Firm	7.27	7.36
	- Interruptible	6.42	6.42
	- Scheduled-Hour Class 1	2.35	1.62
	Class 2	1.44	.99
Less than 115 kV	- Firm	7.76	7.95
	- Interruptible	6.91	7.01
	- Scheduled-Hour Class 1	2.57	1.84
	Class 2	1.57	1.13
(b) Energy Rate - per kW.h		1.69 cents	1.95 cents

2. Special Condition Classifications

Intermittent	- Energy rate per kW.h	1.00¢	1.00¢
Monthly	- Energy rate per kW.h	*	*

* Set on a Monthly Basis

Ontario

Energy
Ontario

Minister

Ministry
of
Energy

Queen's Park
Toronto, Ontario
M7A 2B7
416/965-4286
Telex 06217880

April 16, 1984

Mr. Robert H. Clendining
Chairman
Ontario Energy Board
9th Floor
14 Carlton Street
Toronto, Ontario
M5B 1J2

Dear Mr. Chairman:

Pursuant to Section 37 of the Ontario Energy Board Act, I hereby refer to the Ontario Energy Board for investigation, examination and report, the attached proposal of Ontario Hydro to change, effective the first day of January 1985, the rates or charges including the effect of changes to the policies and practices respecting power costing and rate making on its customers, as defined in the Act.

As part of the 1984 electricity rates proposal, Ontario Hydro proposed revisions to its electricity costing and pricing policies and practices. The Ontario Energy Board examined these proposed revisions and recommended in its report dated August 31, 1983 that many aspects of Ontario Hydro's methodology be deferred pending further review at the rate hearings this year.

As a result, implementation of the major aspects of the revisions to the proposed costing and pricing policies and practices was deferred by the Board of Directors of Ontario Hydro when they approved the rates charged for electricity effective January 1, 1984.

I am specifying the following terms of reference for the guidance of the Board:

A. The Board shall examine and report on the manner in which Ontario Hydro has determined its revenue requirement and the extent to which Ontario Hydro has kept its proposed revenue requirement for 1985 as low as feasible, consistent with the maintenance of its financial soundness, its ability to attract capital at favourable rates and the reliability and quality of its service to its customers.

Guidance for the Board regarding the policies and processes relative to the assessment of Ontario Hydro's borrowing and net income was part of last year's reference of proposed electricity rates for 1984 and remains unchanged.

B. Ontario Hydro's proposal includes changes to its policies and practices respecting power costing and rate making. These changes and their overall impact on Ontario Hydro's customers should be investigated to determine whether they are reasonable and appropriate.

C. In connection with the changes to the policies and practices respecting power costing and rate making, the principles do not require re-examination.

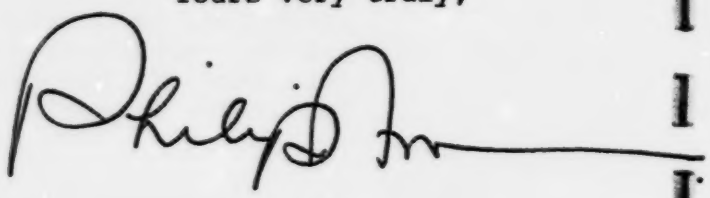
D. As in previous years, the Board shall review and report on the impact of the system expansion program on the proposed rates, however, the system expansion program is excluded from this review.

I would appreciate the Board structuring its recommendations so that Ontario Hydro may act directly on the revenue requirement, the changes to the costing and pricing policies and practices and the resulting rates, in accordance with its responsibilities under the Power Corporation Act and so that I may consider separately such other recommendations as the Board may make.

I look forward to receiving the Board's report.

With kindest regards,

Yours very truly,



Philip Andrewes
Minister of Energy

This is APPENDIX B to the Report of the Ontario Energy Board to the Minister of Energy on Ontario Hydro Bulk Power Rates for 1985 dated August 31, 1984.

Appendix B

List of Witnesses in Order of Appearance (by Sponsor)

	Title
ONTARIO HYDRO	
M. P. Rothman	Chief Economist Economics and Forecasts Division
G. B. Colgrove	Revenue Planning Officer Financial Planning Department Comptroller's Division
P. S. Spiro	Senior Economist Economics and Forecasts Division
D. B. MacCarthy	Vice-President Marketing
W. H. Winter	Director Power System Operations Divison Production Branch
D. R. Tyler	Director Staff Resources and Development Division
E. R. Preston	Section Head Financial Forecasts Financial Planning Department Comptroller's Division
L. D. Wilson	Manager Corporate Plans Corporate Power System Programming Division Power System Program Branch
I. R. Russell	Corporate Comptroller
L. G. McConnell	Vice-President Power System Program Branch
R. W. Bartholomew	Vice-President Finance
W. G. Morison	Vice-President Design and Construction
H. A. Jackson	Vice-President Production Branch

M. C. Williams	Assistant to the Director Nuclear Generation Division Production Branch
D. Goulding	Resource Utilization Planning Engineer Resource Utilization Department Power System Operations Division Production Branch
J. D. Smith	Manager Financial and Business Planning Fuels Division Supply and Services Branch
T. J. Popiel	Group Manager Central Thermal Services Thermal and Hydraulic Generation Division Production Branch
J.A.R. Service	Manager Transmission System Planning Department
J. E. Wilson	Manager Public Hearings Department Corporate Relations Branch
J. K. Snelson	Senior Planning Engineer Generation System Design System Planning Division
D. A. Norman	Scheduling and Estimating Engineer Generation Services Department Generation Projects Division Design and Construction Branch
A. G. Brace	Branch Comptroller Design and Construction
J. E. Seeton	Manager Program Budgets Comptroller's Division Finance Branch
J.A.J. Miller	Manager Heavy Water Utilization Department Technical and Training Services Division
F. P. Chee	Assistant Treasurer Corporate Treasury Division Finance Branch

V. K. Suri	Manager Disbursements Accounting Corporate Accounting Division Finance Branch
T.K.J. Millar	Manager Asset Accounting Corporate Accounting Division Finance Branch
H. N. Isaac	Manager Nuclear Materials Department
J. R. Furse	Partner National Accounting Standards Clarkson Gordon
W. G. Cowan	Section Head Accounting Policy Financial Policy Department Comptroller's Division Finance Branch
W. G. Keller	Manager Industrial Service and Power Billing Department Customer Service Division Marketing Branch
B. A. Bellissimo	Section Head Power Costing Section Financial Policy Department Comptroller's Division
B. J. Conway	Manager Rates Department Market Development Division Marketing Branch
H. C. Palmer	Director Market Development Division Marketing Branch
M. A. Kane	Manager Financial Planning Comptroller's Division
E. H. Burdette	Executive Vice-President Planning and Administration
A. Niitenberg	Executive Vice-President Operations

ONTARIO ENERGY BOARD

L. de Bever	Director Chase Econometrics Canada

ASSOCIATION OF MAJOR POWER CONSUMERS OF ONTARIO

K. H. Kidd	Partner Leighton and Kidd Ltd.
J. H. Lemay	Manager of Central Utilities Inco Limited, Ontario Division
K. Winrow	Vice-President Finance and Comptroller Great Lakes Forest Products Limited
J. Lind	Vice-President of Operations St. Marys Cement Company

ONTARIO MUNICIPAL ELECTRIC ASSOCIATION

R. G. Uhler	Vice-President National Economic Research Associates, Inc.

This is APPENDIX C to the Report of the Ontario Energy Board to the Minister of Energy on Ontario Hydro Bulk Power Rates for 1985 dated August 31, 1984.

Appendix C

VIEWS OF THE PARTICIPANTS IN H.R. 13

INTRODUCTION

The Act instructs the Board to summarize "the information presented and the views expressed at the public hearing" in its report.

The submissions of Hydro and the views of its witnesses on major issues are summarized in the body of this report, as are the views of the participants. In further response to the statutory direction the final submissions of the intervenors and of Board Counsel are summarized in this Appendix.

VIEWS OF BOARD COUNSEL

Introduction

Board Counsel stated that the Board should adhere to the broad principles of public utility rate-making that it has enunciated in previous reports, should strive for consistency and equity in the development of the revenue requirement, and should follow the guidelines of the Minister's letter of reference.

Mr. Armstrong considered that Hydro's fundamental problem was the existence of excess base-load capacity in the system and noted its new corporate strategy calling for "a reduced emphasis on construction of generating facilities, increased emphasis on productivity and cost control and a more active approach to the marketing of electricity" (Mr. Nastich of Hydro). Mr. Armstrong submitted that the Board should report to the Minister that Hydro has been "painfully slow to respond" to these objectives "that are so critical to [its] future success".

Economic Outlook

Mr. Armstrong submitted that the model used by Hydro to forecast inflation was overly simplistic and generally inadequate and that the forecast by Chase Econometrics was, in contrast, clear, complete, and comprehensive. The adoption of the Chase forecast of inflation, he argued, would lead to a reduction of $12 million in the revenue requirement.

Mr. Armstrong recommended acceptance of the Chase forecast of the value of the Canadian dollar in U.S. currency, which would result in a $17 million increase in the revenue requirement.

Primary and Secondary Sales

Board Counsel commended Hydro's efforts to integrate the economic forecasting and the load forecasting functions and the resulting reduction in the unallocated load adjustment. Mr. Armstrong urged the Board to accept Mr. Rothman's estimate of an additional 1.5 percent increase in sales for 1984 and 1985, which would increase Hydro's revenues by $56 million in 1984 and by $63 million in 1985. However, he submitted that the last-minute change in the primary sales forecast indicated a need for Hydro to modify its load forecasting schedule to provide the best and most current information available.

Mr. Armstrong submitted that Hydro's marketing efforts were accentuating the excess base-load capacity problem instead of alleviating it and that, accordingly, the Board should recommend that Hydro specifically address the problem of the growth in peak demand resulting from its marketing programs in the residential and commercial sectors. He agreed with the marketing efforts in the industrial sector and said that Hydro should promote the use of electrical energy in situations which have a high load factor.

Mr. Armstrong expressed dissatisfaction with the general lack of progress in the Marketing Branch and recommended a $5 million reduction in the revenue requirement to reflect the savings on the dual energy program in 1984 and 1985.

Board Counsel submitted that Hydro's forecast of secondary sales, particularly to Michigan, was "unduly pessimistic". He noted that Hydro's secondary revenues for 1984 were already running 12 percent, or $18 million, above forecast and that the decline in the level of the Canadian dollar would further improve Hydro's ability to make export sales. He recommended that the forecast level of secondary sales be increased by 1,300 GWh to 11,000 GWh and that the revenue requirement be correspondingly decreased by $18 million.

Mr. Armstrong submitted that the marketing program had been inadequately developed in the area of secondary sales and that Hydro should actively pursue export sales in the United States and report on its progress in next year's hearing.

Pressure Tubes

Mr. Armstrong submitted that the Board should consider the evidence put forward by Hydro as to the savings of $3 billion purported to result from the decision to replace pressure tubes in Pickering units 1 and 2. He suggested that Hydro's analysis did not recognize the fact that nuclear power would often be at the margin due to the existance of substantial excess base-load capacity and that it did not take into consideration the Nuclear Payback Agreement, which allows Hydro to retain only one-third of

the benefit. Although it was not clear whether the costs of retubing and replacement energy would be shared in a similar fashion under the payback agreement, it was indisputable, said Mr. Armstrong, that any sharing of costs would cease when the agreement expired in 2002, whereas the costs of replacement tubes were to be depreciated by Hydro until 2012.

Mr. Armstrong questioned the reliability of the cost estimates for the replacement program as they had been calculated in constant dollars and Hydro had excluded $50 million in "sunk" costs already spent on the program.

Mr. Armstrong stated that it was "absurd" for Hydro to write off until 1987 the remaining undepreciated cost of the existing pressure tubes over their remaining service life, as it had already ended. He argued that a ten-year amortization period beginning in 1984 would be much more suitable.

Mr. Armstrong submitted that the Board should approve Hydro's proposed treatment of the costs of replacement energy and tube replacement but that the details of the tube replacement capitalization program be reviewed in H.R. 14.

Board Counsel argued that the evidence before the Board was insufficient to allow it to determine the appropriate rate-making treatment for the negative payback. Mr. Armstrong argued that, in the event that Hydro's Board

determines that negative payback is collectible, its proposed treatment of replacement energy and tube replacement was acceptable. However, he submitted that that portion related to tube removal should be netted against the gross tube removal cost and deferred and amortized over ten years. If, however, the Hydro Board concluded that it could not collect the negative payback, that amount should be added to Hydro's allowance for doubtful accounts and be collected in rates.

Fuel and Fuel-Related

Mr. Armstrong argued that Hydro's present forecast of capability factors at Pickering 3 and 4 ignored the actual performance of these units in the past several years and submitted that the capacity factors for these units should be adjusted upwards from 84 percent to 86 percent, with a resulting reduction in Hydro's revenue requirement of $4 million.

Mr. Armstrong further criticized the incorporation of a 2 percent contingency factor for Pickering 3 and 4 and also submitted that the warranty outage should be foregone on Bruce 5 because a similar outage at Bruce 6 would be sufficient to detect any generic faults in both units. This would reduce the revenue requirement by $15 million.

Mr. Armstrong expressed concern that, in 1984, Hydro would be buying uranium concentrate at a price three

times greater than the current spot market price and that the problem would be further aggravated by the additional supply expected by the 1990s under current contracts. Mr. Armstrong concluded that Hydro would probably cancel the Denison Mines contract by 1992 and would, as a result, forego repayment of approximately $160 million of advances made under the contract. He recommended that provision be made for this loss over the years 1985-92, when the remaining benefits of the uranium contracts will actually accrue.

Mr. Armstrong noted that Hydro's coal inventories for all stations combined was in excess of one year's supply from 1985 onward and submitted that a detailed study of Hydro's coal supply arrangements should be provided next year.

Board Counsel submitted that the increased water rental charge amounts to a form of taxation and that to argue for its elimination from the revenue requirement would "simply be flying in the face of reality". He submitted, however, that this increase must indicate that the government had confidence in Hydro's financial integrity and was not concerned about a short-term deterioration in its financial indicators.

Mr. Armstrong argued that the Board ought to continue to monitor AECL's closing of Douglas Point Nuclear Generating Station in order to ensure that none of the

associated costs find their way into rates in the future. On the issue of hydraulic forecasting, he submitted that Hydro should continue to use median flows as the best indicator.

He was also concerned because Hydro had not revised its forecast of in-service dates for Bruce Nuclear Generating Station, although a decision of the Divisional Court indicated that the building of transmission facilities would be further delayed. He submitted that the Board should recommend that Hydro report on the status of its major transmission projects in next year's hearing.

Finally, Mr. Armstrong submitted that the Board simply did not have enough evidence to make a definitive finding on the issue of the efficiency or otherwise of the marketing of Cobalt 60 by Hydro.

Operation, Maintenance, and Administration

Mr. Armstrong submitted that OM&A costs afforded Hydro's management the greatest discretion in establishing rates because they were directly controllable. However, he was concerned because Hydro undertakes a detailed review of these costs only after the annual rates hearing, and he noted that, in 1984, a total of approximately $50 million was cut from the budget between the time of the H.R. 12 hearing and the Hydro Board's approval of the budget. Mr. Armstrong suggested that since this Board was again in

the position of trying to assess costs before a rigorous review of OM&A estimates had been undertaken, it should measure the accuracy of these numbers by using Hydro's prior experience. Hydro had already estimated that further reductions in 1985 OM&A budget levels might total $20 to $30 million, but Mr. Armstrong argued that at least a $40 million reduction was called for. He submitted that such significant cuts in OM&A budgets would also improve overall productivity because Hydro's employees currently perceived a lot of wasted effort.

Fixed Charges

Board Counsel submitted that there were "enormous" inconsistencies among the various depreciation treatments of surplus generating facilities and suggested that Hydro had simply selected the accounting treatment which, at each point in time, best served its rate-making objectives. Mr. Armstrong submitted that, in the interests of consistency and accountability, the Board should recommend that the remaining book value of Lennox, Keith, and Hearn generating stations, Thunder Bay Unit 1, and the combustion turbine units at Scott, Manby, and Detweiller be deferred and amortized over ten years, beginning in 1985. The adoption of this treatment would decrease the revenue requirement by a total of $18 million.

Mr. Armstrong noted the different accounting treatment accorded each of the surplus heavy water plants. Contrary to the Board's recommendation in H.R. 12, the undepreciated cost of Bruce Heavy Water Plant ("BHWP") A had been charged to future-use heavy water inventory. Mr. Armstrong submitted that BHWP A should be treated in the same manner as BHWP D and be deferred and amortized over ten years and that the revenue requirement be increased correspondingly by $7 million. Mr. Armstrong advocated that Hydro should review the future of the heavy water plant at next year's hearing.

Board Counsel expressed concern that the amount of heavy water in the future-use inventory pool, which has no identifiable use, was nevertheless continuing to increase in value. He submitted that in order to achieve inter-generational equity the costs of heavy water not required for specifically identifiable facilities should be charged as an expense, thus increasing the revenue requirement by an estimated $4 million.

Mr. Armstrong argued that all loss make-up transfers of inventory should be costed at the average cost of future-use inventory at the time of transfer and not on a last-in-first-out basis.

In its H.R. 12 report the Board asked Hydro to compare its capital cost control processes with those of comparable U.S. utilities. Mr. Armstrong stated that the

study filed in this hearing was not detailed enough to be helpful and that the annual rate hearing was, perhaps, not the appropriate forum in which to deal with this matter.

Mr. Armstrong stated that Hydro should follow a hedging policy whenever possible in order to obtain some measure of protection against foreign exchange fluctuations over the life of its large debt. He submitted that, instead of gambling that the Canadian dollar will get stronger, Hydro should investigate the use of the futures and options market to minimize its risk in the short term and of "interest swaps" (or "currency swaps") to minimize risks in the medium to long term.

He recommended that Hydro strive for an average daily balance of zero for both cash on hand and short-term notes and that any shortfalls be financed, as they are now, through operating lines of credit. He suggested that an excess-cash and short-term investment balance of $200 million be maintained for the remainder of 1984 and a level of $247 million for 1985, resulting in a net reduction to the revenue requirement of $3.3 million.

He further submitted that Hydro should finance the difference between current assets and current liabilities through short-term debt and that it should borrow such funds in Canada at floating interest rates in order to ensure continuous access to capital at lower rates. The combined

effect of these recommendations, he argued, would be to lower the revenue requirement by $8 million.

Mr. Armstrong submitted that the existing cost allocation procedure gave absolutely no incentive for municipalities to pay their accounts in a timely fashion because the costs of overdue accounts were simply shared by all municipalities. He suggested that Hydro find a way to assign these costs directly to the delinquent utilities.

Board Counsel submitted that, while Hydro's proposals for the allocation of interest, foreign exchange, and net income ought to be accepted for 1985, they should be re-evaluated in next year's hearing.

Net Income and Financial Policy

Mr. Armstrong submitted that Hydro was in a position to "materially affect its revenue requirement according to the pattern of its premature debt retirement" and that it could alter this pattern in order to mitigate foreign exchange losses. He recommended that Hydro adopt an accounting policy to amortize related gains and losses over the life of the old debt, not over the life of the replacement debt as proposed by Hydro.

Mr. Armstrong said that Hydro's proposal to capitalize storage costs as part of the acquisition cost of large projects was inconsistent with its policy of expensing contractual penalty payments and argued that the costs were interchangeable and should both be expensed.

Mr. Armstrong submitted that the Board ought to recommend that Hydro undertake a detailed review of the factors underlying its decommissioning provision every five years, beginning in next year's hearing. He also submitted that Hydro's present treatment of the provision for irradiated fuel management and decommissioning as part of the debt component in the debt-equity ratio was "clearly inappropriate", as it amounted to collecting directly from the ratepayers in rates and subsequently collecting indirectly through net income as part of the ratio.

Board Counsel criticized Hydro for its proposed level of net income for 1985 and noted that the level currently requested was substantially more than Hydro thought it would require for 1985 during last year's hearing. He stated that Hydro, in exercising its judgement as to the level, was avoiding a rational analysis of the issues and was, instead, invoking "all of the usual spectres of impending financial doom". He agreed with Hydro that financial stability and a favourable perception by the financial community were important, but submitted that Hydro had already achieved both of these goals. He said that Hydro's strength in the capital markets was and would continue to be supported by the province's "AAA" credit rating and noted that Hydro's bonds have always been well received.

Mr. Armstrong submitted that Hydro's various measures of financial soundness, especially the financial ratios, actually determined the level of net income. Consequently, the calculation of these ratios was of the utmost importance, but Hydro, he submitted, was not being consistent. He criticized the apparent preference for the use of the interest coverage ratio, which is a driving factor in the level of net income, yet uses a net income figure within its calculation, and recommended that Hydro rely more on a cash-based coverage ratio which would reflect the tremendous cash resources being generated through depreciation.

Mr. Armstrong recommended that net income be set at a level no higher than $240 million, noting that, although this might cause some small deterioration in the financial ratios, "the markets will respond to Hydro as enthusiastically as they always have".

Proposed Rates

Mr. Armstrong submitted that, although all the findings since the Board's costing and pricing report (H.R. 5) had supported the need for rate structure changes, Hydro continued to be "painfully slow" in responding and should "get on with it". He recommended implementation of coincident demand billing in order to reduce or eliminate any customer classification problems. While he acknowledged that its introduction would initially cause some

administrative problems, he stated that it would give an appropriate cost reduction to those customers that provide diversity benefits to the system, would more accurately track costs, and would eliminate the need for a Bary correction, thereby spreading the revenue impact more evenly among direct customers and producing directionally correct capacity charges for each classification. Mr. Armstrong further submitted that the Bary correction should be eliminated in any event.

Board Counsel submitted that the changes to the cost allocation procedure proposed by Hydro should be accepted in order to better divide common and non-common costs. He supported Hydro's proposal that the impact of these changes be phased in by including only 50 percent of the costs in 1985 rates and suggested that the process be completed next year.

Mr. Armstrong recommended that Hydro implement further movement in the capacity-energy ratio for 1985 to 46.5:53.5 to adjust appropriately the revenue responsibility of individual customers.

He suggested that Hydro submit a report in next year's hearing on the usefulness of the modified Composite Peaking Plant ("CPP") and other methods for computing a reasonable capacity-energy split.

Finally, he stated that AMPCO's evidence on the fixed-variable costing method and Wright rate structure "resists the Board's previous recommendations", and he rejected its arguments on these issues. However, he said that the evidence of AMPCO's policy panel was helpful because it provided some insight into the cost impact of Hydro's rate increases on specific industries.

Mr. Armstrong submitted that the Board should recommend against the continuation of the Monthly Power rate for the same reasons that it recommended against the introduction of the Blended Power rate in H.R. 12. He argued that Hydro should curtail its efforts to sell Intermittent Power and concentrate instead on selling excess nuclear-generated power in the export market.

VIEWS OF THE CHURCH IN SOCIETY COMMITTEE OF THE UNITED CHURCH OF CANADA, LONDON CONFERENCE

Mr. Slater and Rev. Eagle outlined their committee's views on the Exploitation Model of Society and the Stewardship Model of Society. They stated that Hydro adhered to the Exploitation Model which encourages the consumption and not the conservation of energy.

The committee endorsed the Stewardship Model, which recognizes that the goal of the market is "to provide for human need in a responsible and ecologically safe way"

and incorporates conservation, integration, and regeneration. It recommended that the Board assure that capital costs arising from new and increased demand be allocated to the users responsible and that larger users pay a larger proportion of capital and operating costs. It submitted that Hydro should be forbidden to advertise and promote the use of electricity and that users be encouraged to decrease consumption, particularly for space heating.

VIEWS OF THE ONTARIO NATURAL GAS ASSOCIATION

Economic Outlook

ONGA accepted Hydro's economic forecast for 1985.

Primary and Secondary Sales

ONGA's counsel, Mr. Howe, submitted that Hydro's marketing campaign was comprised of unsuccessful and cost-inefficient programs and that the low success levels of these programs are a function of inadequate market assessment and poor planning.

Mr. Howe claimed that Hydro had not adequately studied the potential effects of its marketing efforts on its transmission and distribution system and on the systems of the municipal utilities. He suggested that since marketing would increase peak demand some utilities might be forced to upgrade their distribution facilities, which would lead to higher rates in the future.

ONGA contended that Hydro should defer its marketing campaigns until it could justify the potential effect of such demand stimulation on its operations and on those of the municipal utilities.

Fuel and Fuel-Related

ONGA submitted that Hydro's attempts to stimulate primary demand were serving to increase its coal consumption, instead of enabling it to sell its excess nuclear capacity. Further, Mr. Howe argued, there is a possibility of an increase in locked-in nuclear energy, which could require Hydro to resort to additional fossil-fired energy.

Fixed Charges

Mr. Howe submitted that the nature and cost of decommissioning should be studied and the results submitted at next year's hearing in order to ensure that current users, not future generations, pay the cost of removal of the assets.

Financial Policy

Mr. Howe noted that Hydro's evidence indicated a significant slippage from the financial soundness targets set out in its net income policy. He contended that a pattern of failure to meet these targets could lead to a perception by the investment community that Hydro's financial soundness was in

jeopardy, which might impair the credit rating of the Province.

ONGA recognized that Hydro must balance its rate increases against its financial soundness targets and its level of borrowings but submitted that trading off financial soundness for a "more moderate" rate increase would only temporarily insulate its customers, its bond holders, and the Province "from the full impact of its failure to meet its own diminished financial soundness [targets]". ONGA recommended a rate increase of no less than 9.1 percent to maintain financial soundness as high as possible.

Proposed Rates

ONGA submitted that, because Hydro considered itself to be regulated, it was obliged to adhere to sound principles of public utility rate-making. Mr. Howe stated that Hydro had failed to demonstrate that the proposed Intermittent and Monthly Power rates were reasonable, did not unjustly discriminate, and were in the public interest. He submitted that there were a number of risks and pricing disadvantages inherent in the continuation of both experimental rates and that, in particular, the Monthly Power rate might promote the consumption of energy and lead to an increase in coal-fired generation. ONGA urged the Board to recommend against the continuation of these rates in 1985.

Conclusion

Mr. Howe expressed concern that Hydro was improperly using its privilege as a crown corporation to compete unfairly with the private sector by establishing incentive rates that might not cover costs. He submitted that Hydro's generation expansion initiatives "run the risk of failing to respond adequately and appropriately to changed circumstances" and urged the Board to consider whether Hydro's present marketing strategy was in the long-term interests of Hydro's customers and the public at large.

VIEWS OF THE ONTARIO MUNICIPAL ELECTRIC ASSOCIATION

Economic Outlook

While the OMEA believed that Hydro's updated short-term economic forecasts were generally appropriate, Mr. Schwartz submitted that the 7 percent inflation rate forecast should be reduced to 6.5 percent and said that the model used by Hydro to forecast inflation was overly simplistic. The OMEA accepted Hydro's forecast of a 78-cent (U.S.) Canadian dollar in 1984 and 1985 but suggested that Hydro revise downward its long-term forecast of foreign exchange rates.

Mr. Schwartz commended Hydro for implementing certain methodological changes recommended by the OMEA in previous years but characterized the prediction ranges used by Hydro as too broad and recommended that Hydro adopt a

time series analysis approach in order to establish their validity.

Mr. Schwartz recommended that, in future, the sensitivity figures used by Hydro to approximate the impact of changes in the economic assumptions on its costs and revenues be provided for both the current year and the proposal year. The OMEA reiterated its suggestion that Hydro conduct a retrospective study of the success of sensitivity analysis in predicting costs and revenues.

Primary and Secondary Sales

The OMEA acknowledged the 1.5 percent unofficial increase in the primary load forecast to be a step in the right direction but recommended that a 2 percent upward revision would be more reasonable in view of current information, including the fact that primary sales for the first three months of 1984 were approximately 2.8 percent above forecast. The effect of the 2 percent adjustment would be a reduction in the 1985 revenue requirement of $30 million.

The OMEA supported the proposed Marketing Branch budget, stating that Hydro must be allowed to market electricity in order to maintain its position in an "increasingly competitive market" and attract more customers in order to use excess capacity.

Mr. Schwartz submitted that the Board should recommend that Hydro cease incurring any further costs for

the Bruce Energy Centre until the government of Ontario releases the funds necessary to build the steam pipeline. This would reduce the 1985 revenue requirement by $0.5 million.

The OMEA submitted that Hydro's secondary sales forecast of 10,700 GWh was "unduly pessimistic". Mr. Schwartz suggested that the declining level of the Canadian dollar and the strong economic recovery in the United States, coupled with Hydro's competitive prices, would result in secondary sales of 11,050 GWh, thereby reducing the revenue requirement by $19 million.

Fuel and Fuel-Related

Mr. Schwartz submitted that nuclear production forecasts should be revised upward because Hydro had consistently underestimated such production and because its forecasts of nuclear capacity factors did not reflect the historical performance of the nuclear units. He submitted also that the capacity factors for the Pickering A and Bruce A plants should be revised upwards to 43 percent and 83 percent, respectively, thereby resulting in a net reduction to the revenue requirement of $27 million.

The OMEA stated that the present production forecast for Pickering 8 ignored the actual experience of units of similar design and size and recommended that the forecast capacity factor be adjusted upward from 84 percent to

90 percent, with a $2.5 million decrease in the revenue requirement. Mr. Schwartz further submitted that the capacity factor at Bruce 5 should be revised upward from 70 percent to 80 percent because the evidence indicated that Hydro probably would not perform the warranty outage scheduled for that unit. At an 80 percent capacity factor there would be a reduction of $9 million in the revenue requirement.

The OMEA recommended a ten-year amortization period for pressure tube removal costs at Pickering 1 and 2 and supported Board Counsel's recommendation that a provision be made in 1985 rates for the possible cancellation, in 1992, of the uranium contract with Denison Mines. Mr. Schwartz agreed with Mr. Armstrong that a study of the appropriateness of Hydro's coal supply policies was necessary.

The OMEA recommended preparation of a study on the correlation between the length of commissioning periods and plant performance in the first year. It recommended also a study to quantify the value of the continued operation of the Nuclear Power Demonstration plant.

Mr. Schwartz submitted that for several years Hydro had underestimated its power purchases and should, therefore, increase the forecast for 1985 to the 1984 level, which would reduce the revenue requirement by $6 million.

Mr. Schwartz submitted that the government of Ontario's unilateral decision to increase the water rental charge by 200 percent effectively represented a breach of contract and that Hydro should attempt to enforce the existing contract provisions.

Operation, Maintenance, and Administration

Mr. Schwartz submitted that OM&A costs were "the most amenable to real management control and to real savings" and that the corporation was still not meeting its cost saving objectives in the most efficient and productive way possible. He observed that the staff reductions made by Hydro in the last few years were, for the most part, attributable to reductions in capital programs and not to improvements in efficiency or productivity and referred to an internal survey that indicated that many of Hydro's employees feel relatively unproductive and underutilized.

Based on the fact that the 1984 OM&A budget, on which the 1985 budget was based, is currently projected to be underspent by $45 million, the OHEA recommended at least a $50 million reduction in the 1985 OM&A budget.

Fixed Charges

Mr. Schwartz urged greater consistency in Hydro's depreciation policies to permit comparisons between financial statements and to assist in achieving inter-generational equity.

He submitted that the Board should recommend that Hydro adopt a general depreciation policy in order to reduce its reliance on subjective factors, which are influenced by the "judgement of the moment". More precisely, the OMEA proposed a policy whereby "any asset experiencing a loss in value should be treated consistently with Thunder Bay Unit 1 and BHWP 'D'". Lennox and BHWP A therefore would be deferred and amortized to rates over the next ten years. Mr. Schwartz recommended similar treatment for the estimated loss in value for Pickering 1 and 2.

Mr. Schwartz submitted that Hydro should develop a long-term borrowing strategy, so that it might more carefully consider trade-offs between maturity diversification and exploitation of favourable long-term rates. He recommended that Hydro provide forecasts of capital availability disaggregated by short-, intermediate-, and long-term markets in order to allow the borrowing program to exploit each source more fully and reduce the amount of foreign exchange exposure.

The OMEA recommended that a review of the hedging program be undertaken in next year's hearing.

Net Income and Financial Policy

The OMEA submitted that the evidence was insufficient to indicate whether or not Hydro's net income policy was appropriate. Mr. Schwartz recommended that Hydro review its

policy before the next hearing and that it give specific attention to the principle of inter-generational equity.

Mr. Schwartz pointed out that, subsequent to the original submission, Hydro's projected levels of net income had declined, the borrowing requirement had increased, and the financial soundness indicators had deteriorated. He noted that even the depressed net income level of $308 million was at risk because of uncertainty about the Nuclear Payback Agreement. The OMEA recommended that the proposed level of net income for 1985 not be reduced but noted the potential for savings elsewhere in Hydro's submission.

The OMEA recommended also the amortization of foreign exchange gains or losses arising out of early debt retirement over the remaining life of the debt that has been retired.

Proposed Rates

In general, the OMEA agreed with Hydro's costing and pricing objectives, but Mr. Schwartz questioned its reliance on customer acceptance and impact as overriding considerations.

Mr. Schwartz expressed concern over the gradual approach to rate redesign adopted by Hydro. He submitted that Hydro had failed to define its rate objectives and the order and pace of change. He suggested that this lack of focus might result in inconsistencies and inequities and

that this uncertainty "ensures that municipal utilities and direct customers are unable to plan properly". He recommended that Hydro provide its customers with a specific program.

The OMEA agreed in principle with the 1985 rate proposal. However, Mr. Schwartz disapproved of Hydro's proposal to phase in only 50 percent of the results of proposed cost allocation changes and recommended that the total cost impact be allocated in 1985. He submitted that a system for determining the equity associated with a specific distribution station be devised in the event of a utility wishing to purchase such a station, that Hydro review its allocation of net income to non-common facilities to recognize the lower risk associated with these assets, and that Hydro's proposed system for dealing with the rural-direct balance not be implemented, since it would permit arbitrary rate manipulation.

Mr. Schwartz stated that, while Hydro was directionally correct in proposing a 50:50 demand-energy ratio in rates for 1985, the future of this ratio was so uncertain that customers were unable to develop long-range plans. He emphasized the need for a larger energy component in rates and recommended the adoption of a 38.5:61.5 split. He urged the Board to request that Hydro clearly define the future of the ratio. The OMEA submitted that the Board should again reject the fixed-variable approach proposed by AMPCO because

no new evidence on the matter had been introduced.

The OMEA noted that the recommendation made by the Board in the costing and pricing hearing (H.R. 5) that a single customer class be established had not been implemented by Hydro on the grounds that its present customer classification tracked costs better. The OMEA questioned the statistical basis for this conclusion and submitted that fairness and equity, rather than cost tracking, should be the prime considerations when choosing a customer classification scheme. Mr. Schwartz recommended that the single customer classification be implemented.

The OMEA submitted that adoption of coincident demand billing, as recommended by Board Counsel, would be inappropriate, because of uncertainty about its nature and the likelihood of implementation problems.

VIEWS OF THE ONTARIO LIBERAL PARTY

Mr. J. Reed, M.P.P., submitted on behalf of the Ontario Liberal Party that the 9.1 percent increase proposed by Hydro was unacceptable, and he recommended a rate increase no higher than the projected rate of inflation. The Liberal Party requested the Board to extend the hearings to examine Hydro's latest financial projections and recommended the establishment of "life-line rates" to cushion the effects of

the rate increases on senior citizens and others on fixed income. Mr. Reed stated that the advisory nature of the Board's function meant that Hydro set its own rates regardless of the Board's recommendations. He recommended that the Board request a reference from the Minister of Energy to examine system expansion, in particular continuation of construction of Darlington Generating Station.

The Liberal Party submitted that Hydro's uranium contracts should be open for review by either the Board or a committee of the Legislature and that the present oversupply of uranium should be corrected. It recommended that Hydro reverse its decision to burn additional high-sulphur coal from the United States because of acid rain damage to the environment.

Mr. Reed was critical of Hydro's borrowing program, the increased water rental charge imposed by the Ontario government, and Hydro's foreign borrowings. He stated that Hydro's ever-increasing capital requirements "indicate a serious illness for the Crown Corporation's financial soundness" and that societal needs such as health care, education, and housing were not being met because the Province's financing capacity was being squeezed.

Mr. Reed believed that, for Hydro to be accountable, changes in legislation were required so that the appointment of the chairman of Hydro and Hydro's borrowings

would require approval of the Legislature, following a hearing by one of its committees.

VIEWS OF THE ONTARIO NEW DEMOCRATIC PARTY CAUCUS

Mr. O. DiSanto, M.P.P., on behalf of the Ontario New Democratic Party Caucus, opposed a 9.1 percent increase in Hydro's rates, stating that it was inflationary and inconsistent with the government's Inflation Restraint Program. He added that increasing energy prices in the present economic climate would undermine the competitive position of Ontario industries and place an unwarranted financial strain on society. He was critical of Hydro's continual borrowing of funds to finance generation facilities not required by the province. He recommended that construction of Darlington Nuclear Generating Station be cancelled and that the Board review Hydro's expansion plans. He stated that the low price Hydro paid for privately generated electricity "created a deliberate barrier to the development of electricity generated by any source other than nuclear power."

Mr. DiSanto submitted that the Board should re-evaluate Hydro's continued commitment to nuclear expansion in light of the Pickering tube failure. He stated that Hydro's present marketing effort to sell power conflicts with the conservation ethic - a crucial element in Ontario's

energy strategy - and recommended that the Board address these problems.

VIEWS OF ENERGY PROBE

Introduction

Energy Probe was concerned with the vagueness surrounding "virtually every forecast Hydro makes" as well as the technical and financial uncertainties that Hydro has been loathe to quantify or even acknowledge. It submitted that these uncertainties were accompanied by large downside financial risks that could not be matched by potential benefits and were exacerbated by Hydro's tendency to recognize and make provision for contingencies that increase costs, but not for the opposite.

Mr. Poch submitted that Hydro was attempting to lower rates in a manner that was "stealing from future customers to subsidize rates today". Further, he argued, accounting principles provide no guarantee of fairness because of varying interpretations.

Economic Outlook

In general, Energy Probe agreed with Hydro's updated economic forecasts. However, it noted that there might be incentives for Hydro to overstate its interest rate forecast in order to meet its goal of keeping rates below inflation

through the 1980s and to justify its capital expansion program.

Primary and Secondary Sales

Mr. Poch urged the Board to be cautious in adopting the unofficial 1.5 percent increase in the load forecast because of Hydro's consistent overforecasting of electricity consumption and to note the results of the end-use forecasting model, which indicated a lower rate of load growth.

Mr. Poch expressed Energy Probe's concern that Hydro was using its large marketing budget to "encourage customers to act against both Hydro's and their own long-term interests". He noted that many programs initiated by Hydro had been "less than successful" but that this had not served to deter it from "wasting more millions". Mr. Poch said that even if the marketing program did succeed, it would have artificially strengthened the need for expensive system expansion and negated conservation efforts.

Energy Probe submitted that the secondary sales forecast should be lowered because Hydro was using the less expensive coal plants, previously a primary source of export sales, to replace the output of Pickering 1 and 2. He said that, as 31 percent of Hydro's acid gas emissions and 5 percent of its nuclear waste was due to exports, lower export levels would be beneficial.

Pressure Tubes

Energy Probe expressed concern over Hydro's apparent disregard for warnings about pressure tube failures that, if noted at the time, might have helped avoid some of the costly repairs at Pickering 1 and 2. Mr. Poch said that, at the very least, Hydro would have been able to make some provision for remote tooling at an earlier date. Mr. Poch submitted that Hydro should obtain additional insurance against the possibility of future nuclear accidents.

He disagreed with AMPCO's position that pressure tube rehabilitation costs should be deferred until firm because that would place even more of the burden for past benefits on future customers. He recommended establishment of an allowance to provide extra funds in the event that the AECB imposes a more expensive remote tooling procedure on Hydro in order to increase worker safety.

Energy Probe submitted that Hydro should not start up Bruce 8 but should investigate the merit of waiting for the new design of garter springs.

Operation, Maintenance, and Administration

Energy Probe submitted that a review of Hydro's labour productivity was warranted because a comparatively low rate of growth was predicted.

Fuel and Fuel-Related

Mr. Poch expressed concern that Hydro has not made allowance for the possibility of the shutdown of more than one four-unit nuclear station. He submitted that Hydro should at least maintain a stockpile of low-sulphur coal so that, in the event of an extended or widespread nuclear outage in the fall or winter, it would not have to rely on high-sulphur coal, which would produce a significant acid gas impact.

Mr. Poch submitted that Hydro should give more consideration to inter-generational equity in deciding to forego the warranty outage at Bruce 7 and 8. He recommended that the $300 million worth of advances that might be lost if the Denison Mines contract were terminated in 1992 be amortized over a period ending midway between 1992 and the current expiry date to protect the interests of future customers.

Fixed Assets and Borrowing

Energy Probe submitted that Hydro's heavy water accounting policy was biased toward deferring current costs. It recommended that current nuclear operations should pay the average price for heavy water in the future-use inventory, that in-service heavy water be depreciated over the life of the plant in which it is being used, and that surplus heavy water be written off over a reasonable period. It suggested

that the cost of BHWP A, currently accounted for in the future-use pool, be depreciated as an operating expense over ten years.

Mr. Poch endorsed Mr. Armstrong's and Mr. Schwartz's analysis of the inconsistencies in Hydro's depreciation policies and agreed with Board Counsel's recommendation that the provisions for decommissioning of nuclear stations be reviewed every five years.

Energy Probe requested that the Board consider the cost and the future of Darlington Nuclear Generating Station as an additional uncertainty surrounding the 1985 revenue requirement and suggested that such uncertainty demonstrates the need for greater financial soundness.

Mr. Poch submitted that the Board should recommend recognition of the reduced value of Lennox Generating Station now, in order to avoid deferral of more costs to future customers.

Net Income

Mr. Poch submitted that, in light of all the uncertainties he had outlined, including the negative payback controversy and the potential costs arising out of the forced delay in the southwest transmission system, the Board should recommend that Hydro improve its financial soundness and its debt ratio by increasing its rates. He expressed disagreement with Board Counsel concerning the provisions for irradiated

fuel management and decommissioning costs and said that they should properly be treated as debt.

Proposed Rates

Energy Probe expressed concern that the fair distribution of costs across generations of customers was not specifically considered by Hydro in rate-making.

Mr. Poch requested that external factors such as economic rationality and public policy be considered in reviewing rate structures in future hearings to prevent Hydro from being able to "shape the public's will" by devices such as the "Go Electric" campaign.

Although Energy Probe could not wholeheartedly endorse the present customer classification scheme, it felt that the evidence provided little basis on which to choose an alternative. It did, however, support the notion of similar treatment for similar customers and the municipal utility concept.

Mr. Poch submitted that the Board should recommend against the Monthly and Intermittent Power rates proposed by Hydro.

He expressed concern over the Board's reluctance to consider the issue of "buyback" or parallel generation rates, especially as there was no other body to review these rates. He urged the Board to promote public discussion and examination of as many issues as possible.

Costs

Mr. Poch asked the Board to award costs to Energy Probe as it is a charitable organization with no ability to pass on costs and no commercial interest to weigh against these costs. He submitted that any cost award would improve the level and quality of Energy Probe's participation in future hearings.

VIEWS OF THE ASSOCIATION OF MAJOR POWER CONSUMERS OF ONTARIO

Introduction

AMPCO submitted that the substantial adverse impact of Hydro's system expansion program on rates occurs at a time when industry is struggling to remain economically viable and recommended that Hydro's revenue requirement be kept as low as possible.

Economic Outlook

Mr. Davies submitted that Hydro's inflation forecast of 7.0 percent for 1985 was overstated, arbitrary, and unsupported by the evidence. He stated that the Chase Econometrics forecast of 6 percent was preferable because it accounted for the anti-inflationary effect of productivity gains and the relative weakness of other factors driving inflation and he recommended a decrease in the revenue requirement of $12 million.

AMPCO accepted Hydro's revised foreign exchange rate forecast for 1984 and 1985 but submitted that Hydro's downward revision of its forecast of the rate of growth in the GPP to 3.5 percent was inconsistent with employment growth, government spending, and investment spending in Ontario. It therefore recommended a level of 4.0 percent.

Primary and Secondary Sales

AMPCO submitted that Hydro's load forecasts were "unduly depressed by the 1982 recession" and were based on outdated data and that the unofficial increase of 1.5 percent should be increased even further to an average monthly peak of 17,300 MW and to an annual energy level of 116,287 GWh, thereby reducing the revenue requirement by $29 million.

Mr. Davies submitted that Hydro's forecast for secondary sales ignored the fact that power exports would be increasingly nuclear-generated and competitive with energy generated in the United States and by Hydro Quebec. AMPCO accordingly recommended that Hydro's forecast of secondary sales be increased by 2,295 GWh to 12,000 GWh, which would reduce the revenue requirement by $21 million.

Operation, Maintenance, and Administration

Based on Hydro's indication that 1984 OM&A costs would be $30 million under budget, AMPCO recommended a similar reduction in the provision for 1985.

Pressure Tubes

AMPCO submitted that it was too early to endorse Hydro's proposed rate treatment of the Pickering retubing program, given the uncertainty about the final cost and the nature of the interim approval by the Board of Directors. Mr. Davies suggested that the accounting treatment of the removal costs might be inappropriate and that Hydro should consider funding from the Stabilization of Rates and Contingencies account. He questioned Hydro's reliance on cost-sharing under the Nuclear Payback Agreement, since there was some doubt as to the amount to be recovered from the other parties. Mr. Davies submitted that the agreement should be terminated and that Hydro should not make any major commitment to the rehabilitation program until this matter is resolved. Finally, AMPCO recommended that the net cost of tube removal at Pickering 1 and 2 be written off against 1984 revenues. This would lead to a $22 million reduction in the 1985 revenue requirement.

Fuel and Fuel-Related

AMPCO submitted that the Board should not recommend any increase in water rental charges until a new agreement is reached between Hydro and the Province of Ontario. Mr. Davies said that the Board should recommend that the Minister ask the government to reconsider the imposition of the increased water rental charges in light of the adverse

effect on Hydro's rates. The effect of cancellation would be a cost reduction of $58 million.

Mr. Davies recommended deletion of the 1985 charge of $30 million for commissioning energy as the generating units provide long-term benefits that should properly be paid for by future customers. Mr. Davies recommended also that fuel costs be reduced by $4 million by deleting the 2 percent contingency allowance for nuclear capacity factors for Pickering 3 and 4. The allowance was for the possibility of further pressure tube leaks at the rolled joints, but Mr. Davies noted that no leaks had been experienced since 1975.

AMPCO expressed concern over Hydro's contractual obligations with respect to purchases of Canadian and U.S. coal and recommended that the Board conduct an extensive inquiry into coal costs in next year's hearing. It noted that these obligations might well reduce Hydro's ability to minimize costs through the purchase of lower-cost power from Manitoba and Quebec.

Mr. Davies stated that the information provided by Hydro on fuel costs was generally inadequate and should have been presented in a more detailed and concise manner. Noting Hydro's consistent overestimation of fuel and fuel-related costs in its forecasts, Mr. Davies recommended that the 1985 forecast be reduced by $25 million.

Fixed Charges

AMPCO recommended that Hydro's proposal to reduce the remaining service life of Keith Generating Station from six years to one year not be implemented. Mr. Davies argued that this method would have the greatest impact on 1985 ratepayers and was not warranted because there remained a chance that the plant might be returned to service at any time. Accordingly, AMPCO submitted that the revenue requirement be reduced by $19 million.

Financial Policy

AMPCO submitted that adjustments to net income were a legitimate means of avoiding a high rate impact because of the major generating facilities that would be coming into service in 1985. Mr. Davies submitted that "a more gradual move by Hydro towards its financial targets in 1985 would not prejudice its financial soundness". He pointed out that a lower level of rate increases would stimulate sales and use excess capacity, while the provincial guarantee on debt and the promising trend in Hydro's financial ratios would maintain its financial integrity. Further, he argued, because many of the new facilities coming into service were in excess of system requirements, inter-generational equity would be improved by not imposing all the associated costs on present customers.

AMPCO recommended that no provision for rate stabilization and contingencies be included in the net income provision and that Hydro's calculation of the debt retirement charge exclude the reserves and provisions that Hydro currently treated as debt. The net effect of these recommendations would be to set Hydro's net income at a level of $232 million.

Proposed Rates

AMPCO submitted that Hydro's proposed demand-energy ratio in rates be rejected because it was a "reaffirmation" of the Composite Peaking Plant rate-making method, which it perceived to be unpredictable and impractical. AMPCO proposed instead the adoption of the fixed-variable method for determining the demand-energy split, because it would better reflect the cost characteristics of the system. It recommended the adoption of a 56:44 demand-energy split for 1985 in order to provide an "appropriate directional signal" with minimal adverse impact. AMPCO questioned the perceived "emphasis on energy" and stated that the Board should continue to be guided by the rate-making principles of fairness, stability, revenue recovery, and engineering efficiency, without bias toward a larger energy component in rates.

Mr. Davies reaffirmed AMPCO's endorsement for 1985 of the existing customer classification. He felt that Hydro

had sufficiently resolved the concerns of the OMEA and that, in any event, Hydro's recent customer classification study, which supported retention of the present system, was the most comprehensive study of this issue to date.

AMPCO considered that Board Counsel's recommendation that coincident demand billing be implemented was premature because of problems of definition and implementation.

Mr. Davies supported Hydro's position that the Bary correction should be retained in rates and recommended that a Wright rate block be added to direct customer rates to assist low load-factor customers. Finally, he recommended that the Board request the Minister to consider a combined review of bulk power rates and retail rates in order to recognize that the issues do not exist in isolation.

VIEWS OF MR. ARNOLD M. EARL

Mr. Earl, who appeared on his own behalf, argued that the Ontario Legislature should have the authority for Hydro appointments and policy decisions and that the Corporation should be completely accountable. He argued that Hydro's credibility would increase and that Hydro "would return to be a leader in the power generation field and its internal employer/employee relation(s) would vastly improve".

Mr. Earl was critical of Hydro's dependence on nuclear power which, he argued, was not reliable. In his opinion, nuclear stations had been considered "sacred cows" but were now changing into "white elephants". He disagreed with construction of the Darlington Nuclear Generating Station since he considered that a proper return would never be achieved because of its enormous cost. He argued that Ontario should be concerned by proposals made in the United States to direct water south from the Great Lakes and said that rivers such as the Albany River could be reversed for hydraulic generation by Hydro.

He agreed with a statement by Mr. Nastich (Hydro President) that coal-fired generation could not be ignored as the technology for coal burning improved. He submitted that coal-water slurries were viable and that the technology could be proven in Hydro facilities. He indicated that the technology for limestone scrubbers, which was developed at Hydro, had been taken over by a U.S. company and that Hydro was now forced to buy its own technology. He questioned why, while there seemed to be sufficient funds to produce a robot arm for removing fueling rods from nuclear reactors, there did not appear to be any money for scrubbers. He suggested that Hydro monitor research on the burning of garbage and waste to produce electricity and implement this method in generating stations such as Hearn. He said that fuel savings of 40-75 percent could be obtained by using waste, coal, and natural gas to produce electricity.